

710.8

A Compleat
DISCOURSE
OF
WOUNDS

Both in
GENERAL and PARTICULAR:

Whereunto are Added the severall Fractures of the Skull,
with their variety of Figures.

As also a

TREATISE
Of Gunshot-Wounds in General.

Collected and Reduced into a New method
By JOHN BROWN, Sworn Chirurgion in Ordinary
to the Kings most Excellent MAJESTY, and appro-
ved, and allowed by his MAJESTY'S Chief Chirurgcons;
and may be of singular use to all Practitioners in the Art of
Chirurgery.

Satis nunquam Dicitur, quod nunquam Satis Discitur.

L O N D O N,

Printed by E. Flesher, for William Jacob, at the
Black Swan in Holborn. 1678.

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IMPRIMATUR

Liber cui Titulus, (*A Compleat Discourse of Wounds, &c.*)

March 6.
1676.

Geo. Thorp, Reverendissimo in *Christo* Patri, & Domino, Dom. *Gulielmo* Archiep. Cant. à Sacris domesticis.



TO THE
MOST EXCELLENT
AND
MIGHTY MONARCH
CHARLES II.

By the Gracious Providence of God

KING
Of Great *Britain*, *France* and *Ireland*,
Defender of the Faith, &c.

THESE
CHIRURGICAL ESSAYS

Are most humbly Dedicated by

YOUR MAJESTIE'S

Most Loyall and

Obedient Subject

and Servant,

John Brown.

TO THE
MOST EXCELLENT
AND
MIGHTY MONARCH
CHARLES II.
By the Gracious Providence of God

THE
OF GREAT BRITAIN, FRANCE AND BELGIUM
OF THE FAITH OF THE

THESE
CHRISTIAN ESSAYS
Are most humbly Dedicated by

Your Majesty's
Most Loyal and

Obedient Subject
and Servant

John Brown

*Industriam Joannis Brown, Authoris
hujus Libri de Vulneribus, maximè
probamus, atque hoc Opus omnibus Chi-
rurgis perutile ac necessarium esse posse
judicamus.*

J. Knight, Reg. Cbirurg. Princip.

Sackvill Whittle, Reg. Cbirurg.

J. Pearse, Reg. Cbirurg.

T O

Mr. J O H N B R O W N,

Upon his

TREATISE of WOUNDS

SIR,

YOU have taken great and good Pains in the Composure of this Work, which treateth so particularly of many subjects; wherein having made use of Approved Authours, and Choice of Effectuall Medicines, together with proper Historicall Illustrations; that it will not onely be of great use unto others, but also an encouragement unto your self in your Chirurgicall endeavours.

Sir, I am

Your Friend to serve you,

Thomas Brown.

T O

TO

Mr. JOHN BROWN Chirurgeon,
Formerly my Servant.

SIR,

I Cannot but highly approve, and value your study and pains in this *Treatise of Wounds*, which without doubt will be of singular use, and special advantage to the industrious Practitioners of our Mystery and Art.

Ita censuit

Thomas Hollier, Chirurgeon of his Majestie's Hospitalls.

London.

A N

ELENCHUS

Of the Authours Names concerned in
this Book of Wounds.

A <i>Lbucasis.</i>	<i>Fallopins.</i>	<i>Oribasius.</i>
<i>Aquapendens.</i>	<i>Florentinus.</i>	<i>Paræus.</i>
<i>Avicen.</i>	<i>Fernelius.</i>	<i>Platerus.</i>
<i>Alexandrinus.</i>	<i>Fracazinus.</i>	<i>Paulus Hegineta.</i>
<i>Arcaus.</i>	<i>Galen.</i>	<i>Placentinus.</i>
<i>Benivenius.</i>	<i>Gordonius.</i>	<i>Quercetanus.</i>
<i>Boccatius.</i>	<i>Guido.</i>	<i>Rhasis.</i>
<i>Berengarius.</i>	<i>Glandorp.</i>	<i>Read.</i>
<i>Blossius.</i>	<i>Gilbertus Anglicus.</i>	<i>Schenkins.</i>
<i>Brasavolus.</i>	<i>Hippocrates.</i>	<i>Spigelius.</i>
<i>Benedictus.</i>	<i>Hali Abbas.</i>	<i>Soranus.</i>
<i>Camerarius.</i>	<i>Hollertus.</i>	<i>Spererius.</i>
<i>Cardanus.</i>	<i>Hercules Saxonia.</i>	<i>Tagaultius.</i>
<i>Ctestas.</i>	<i>Jessenius.</i>	<i>Tragus.</i>
<i>Celsus.</i>	<i>Jacotius.</i>	<i>Velasius.</i>
<i>Carpus.</i>	<i>Amatus Lusitanus.</i>	<i>Valleriola.</i>
<i>Crollius.</i>	<i>Lemnius.</i>	<i>Vertunianus.</i>
<i>Clower.</i>	<i>Lindanus.</i>	<i>Vigo.</i>
<i>Diemerbroeck.</i>	<i>Laurentius.</i>	<i>Weckerus.</i>
<i>Douglas.</i>	<i>Mercurialis.</i>	<i>Felix Wirtz.</i>
<i>Fabritius Hildanus.</i>	<i>Matthiolus.</i>	<i>Willis.</i>
<i>Forestus.</i>	<i>Nicolaus.</i>	

ERRATA.

P Ag. 23. lin. 29. Read native heat. p. 29. r. replenish. p. 145. l. r. *in ym.*
p. 152. l. 8. r. Menth. p. Diversis r. Epuloricks. p. 219. 7. r. Conjunctiona.
p. 238. l. 3. r. Rack. p. 248. l. 27. r. Cute. Omnibus locis, r. aqu. fontana.

CHIRURGICAL INSTITUTIONS

As Touching

WOUNDS.

IF, according to the ancient Sentence of the *Stoicks*, Man was bred and born for the publick good of his Neighbour: what greater service may be allowed in reason to be performed for a Commonwealth, then to study the health of its People; and the preserving their parts in vigour, form and beauty? And as the Learned and prudent *Plutarch* declares, that man had life given him from his Maker for Knowledge sake, the which doth as well procure Renown to his Name, as produce his Vertues into Action: so daily Experience doth evince, that the Industrious hands, and unwearied Labours of men of worth and Learning, have been of great effect, use, and benefit to all ages. And may we not well grant the same of Chirurgery? where we may with pleasure and admiration view and behold, how variously man, being either wounded, incised, pricked, battered, contused, or the like, is brought into a good form and shape by this excellent Art. It is he alone that can check fear in the Patient, and banish danger by his Judgment; foretell Symptoms, and prevent accidents: he is as well the Comfort in the Field, as a Friend in the City. It is by his practice and Art that divided parts are united, it's his Skill that keeps them thus united. And as *Homer* saith, we stand as much

Chirurgical Institutions

in need of his help as we do of Water or Fire, πολλὰν ἀνταξίαν ἄλλων. And for this reason was it, that the Ancients taught their Scholars this Art of Chirurgery in their Schools, from whence also they learned their first rudiments and Institutions.

And since my present task wholly relates to Wounds, I shall divide them into general and particular Discourses. To these also have I adjoyned Gun-shot Wounds, and a particular discourse of all kinds of Wounds of the Head, thence accompanying this Treatise with Wounds in particular, (*viz.*) such as in their order may be said to fall from thence to the Foot. And as every of these do carry with them many differences, forms, shapes, and habits, it shall be my present endeavour to acquaint the Young Chirurgeon, how to provide and arm himself against these, and with what necessary Instruments he may perform this task, and to conquer and cure the direfull Symptoms which attend many Wounds, which may inflict or accompany some parts of the Body. And that I may place him in his right Tract, which may conduct him to the true and well management of these: these four things will necessarily fall under our Consideration, being very proper engines in their places to be used in Wounds, and these are *Ligatures*, *Medicines*, *Bolsters* and *Pledgets*, of each of which a particular respect is to be had, for they all require a right Order in their applications, both as touching their long or short continuance at the part, a slight passing by of which, doth very often prove detrimental.

Ligature
and its two
Species.

And first as touching *Ligature*, of this there are proposed two contrary Species, the one to be made more strict, whilst the other may be made more loose. And these two have diversity of parts allowed them, some parts being properly said to be thick, and others called thin or rare. That part is accounted thick which is covered both with *Bolsters* and *Rollers*, these appointed both for keeping the part warm, and also for making it more firm: that called or said to be rare or loose,

loose, which onely bindeth, not covereth. And these also are to be considered according to the Times of the year, in which they are used or said to be applied. Thus Winter time does generally allow to make more use of these then the Summer. Three fingers breadth for them is a very good allowance. Those *Ligatures* are generally accounted best which are made and applyed most naturally, and those do for the most part expresse the greatest honour to the Chirurgion which are most exquisitely performed by him. This made Wise *Hippocrates* affirm, that good *Ligature* doth delight the eye, as well as give the Patient satisfaction.

The next two shall be *Section* or *Incision*, and *Cautery* or *Incision and Adustion*; these also in some cases are very usefull and necessary, and being either made sooner or later do carry an equal praise and estimate: for in some cases *Incision* is speedily required, and in these, delay may bring pain and other bad Symptoms, and these fix or place a new fear on the Patients front: But where many *Incisions* are to be made, a more deliberate care is to be had and used, granting and allowing the Patient some Intervalls of rest: and these are to be so performed, as that they bring no pain to the Patient. To the well doing of which, the prompting of convenient Instruments and Medicines do much conduce, every one of which is to be disposed in its proper Orb and Sphere, not hindring or detarding one another. Then are these to be applied in their right method and form. The length and shortness hereof ought also to be considered; and what Instruments are most proper for the performance hereof: for some parts of the body are of a speedy flux, and upon the slight touch of a thin and small Instrument sheweth it self, as Veins and Arteries, the which are not readily obstructed or stopped: these parts require small *incisions*, and for this use the *Lancet* or *Incision Knife* are the best Instruments. In places which are not so peccilous, where the vessels lie deep, and the blood not so apparently contained, we may venture on larger Instruments. But of these afterwards.

*Cupping glass-
ses.*

And because *Cupping-glasses* are generally reckoned amongst the Chirurgeons Instruments, I shall discourse of these here also. These although they operate not as other Instruments doe, yet in many cases they are of great use. These are called *Concave* Instruments, generally used for Revulsion, to be applied with, or without flame, by the benefit of which Instruments, the humour is fetched from many parts of the body, and drawn to the part to which they are applied, and so is drawn forth. These also are sometimes applied with or without Scarification. When there is occasion to make use of Scarification, begin your *Incision* from the lower parts, and so pass upward, for thus the blood of every Scarified part will be apparent; the which on the contrary being made first in the upper part, the blood thence issuing will choak and obscure the small *Incisions* which are made downwards, towards the lower part of the circle. Here also are we with *Galen* to consider the differences of *Incisions*, thus properly to be made, for they ought to be either thin, superficial and slender, or deep and large, or of a size between both. Now such as are made superficial cannot draw from the remote parts: these are neither said to revell nor derive, but do only extract that humour which is cutaneously lodged within. Others that are made more long, do educe much humour, as *Orobascus* witnesseth of himself, who upon having his Thigh scarified when he lay sick of the Pest, had drawn from thence by the benefit of the *Cupping-glass* near two pounds of blood, for this fetched it from the remotest parts of his body, and at length perfectly recovered him. And for these three causes they are accounted very usefull Instruments, because they do both Derive, Revell and Expurge the redundancy of humours which are lodged in the body, and do discharge the same by the small *Incisions* opened by the Circle of the Glass, the which doth both distend them and force the blood to run more freely.

*Cupping-glass-
ses very use-
full in three
Respects.*

And because Extraction of Weapons, Splinters, Arrow-heads, Darts, Bullets, superfluous Flesh, Rags and the like, are a very

very necessary point and Intention in Chirurgery, especially in curing large and Gun-shot Wounds, I shall in the next place give you the names of such Instruments as are most in use with us for the same purpose, (*viz.*) *Crows Bills*, *Cranes Bills*, *Ducks Bills*, *Terebellum*, *Forcipes*, and the like. But because these will appear more properly in their places of Gun-shot Wounds, where also their figures are presented, I will speak no more of them, onely here alluding this Caution, That there be not used too much violence in Extraction of these extraneous Bodies, and to give and grant a just time for the execution of this Intention. Knowing that moderation is sometimes allowed as advantageous, as remissness or inconsiderateness granted insuccessfull: and in some cases it is not requisite to extract these bodies through the Wound, they being sometimes fixed in a bone, or between bones; sometimes nature will lend her assisting hand to your work, if you give her time; and this, various History makes good, and both former ages and our latter times have experienced the same. *Albucasis* writes of a Woman who having an Arrow shot near her Belly, and lodged in her body, she recovered of her Wound. Ofttimes, after they have been lodged for many years, they frame a way for themselves and there discharge, by making Abscesses for their Exition: and this you may see confirmed by these following Histories. *Alfaharavius*, *Theoric*. Tract. 6. cap. 1. writes that he saw a man who had an Arrow shot into his Back, the which after seven years made its way out. *Gilbertus Anglicus* lib. 5. Compend. writes of a man who having an Arrow shot into his Guts, had it drawn forth with the Excrement, and that the man escaped: but of these expect more plentifully, in Gun-shot Wounds. Sometimes it is also requisite that the Wound it self be dilated, for the more ready making way for its Exition: and then if you perceive the Extraneous body which is to be Extracted to be perfectly loose, you may remove it the first dressing. But if it be only loose at one end, and fixed at the other, strive not too much for its removall,

Observat.

History.

Another.

Another.

Differences
of Weapons.

lest hereby you purchase some ill accidents you cannot readily overcome and abate; as such a flux of blood as is not speedily to be stopt, and therefore in such cases are we to wait Natures leisure. Having thus shown you what large Instruments are best and most in use in Gun-shot Wounds, you will find it a great advantage to gain the signs of these infixed Weapons; for those being once known, there can be no place left of doubt which may terrify the Patient, or question the Chirurgeon; for it is the true Knowledge of Signs which do hasten and promote the cure. Here also is to be considered the frequent differences of Weapons, and these are carefully to be observed, and with these the variety of the parts into which they are infixed, for on these two does the difficulty of the cure and Extraction chiefly depend, as shall elsewhere more at large appear. Now the differences of Weapons are taken from their matter, being made either of Wood, Glass, Iron, Steel, Brass, or the like; from their Figure, being either Round, Triangular, Four-square, having sharp Points, Bearded; from their Magnitude, being either large, small, or of middle size; from their number, being either one or many, Simple or Compound; from their habit, some of which being sharp pointed with Iron heads, others Concave; some firmly fixed to the Wood, others more loosely set; and lastly they differ much in their Quality and Vigour, some being venomous, others not. As to the parts affected, these are evident enough from the property of accidents, which they shew: and where all these are found out, the Cure goes on with speed and success; for *Galens* Proverb is very true, *Dimidium facti, qui bene cepit, habet*. And he that thus soweth the seeds of his Art may well expect to reap a plentiful Crop of Honour and advantage to himself, as well as Ease and Comfort to his Patient.

And as touching proper Medicines required in curing Wounds; the times of Purging and Dyet required therein; of the diversity of Wounds, and variety of Instruments,

ments, and Medicines, as he ought alwaies to have about him, I shall in their proper order set down. The Young The Chirurgions Box thus to be furnished. Chirurgion should have his Box thus furnished with Instruments: with *Stazers* to cut, *Forcipes* to Extract, a *Spatula* to mix Unguents, and spread Emplasters. A *Spatula Lingua* for depressing the Tongue. *Incision Knife* to make Fontinels, and dilate any part. *Probes* to search the depth of Wounds. *Uvula Spoon* to melt any Balsome, and also used in Relaxation of the *Uvula*, the which after its being restored, is to be kept up by Restraining Powders being blown through this thither. A *Stretching Quill* to keep his Needles. The upper part of his Box being alwaies furnished with *Lint* for making *Tents*, *Dossils* and *Pledgers*, and the lower part to be armed with convenient Emplasters. In his *Salvatory* he should have these Unguents in readines. *Unguent. Balsicon*, In his Salvatory these Unguents. or *Aureum* or *Piscum* to digest, *Unguentum Apostolorum* to mundify, *Unguent. Dialthaze* to ease pain, *Balsam. Luca-*
telli, or *Linimentum Arcei* to fill up with flesh, *Unguent. Desiccativum Rubrum*, *Diapompholigos*, or *Album Campboratum* to skin, dry up, and ease pain. Lancet Case. In his *Lancet Case* he should have severall *Lancers*, a *Capital Rasour*, and an *Incision Knife*; all these he ought at all times to be ready furnished with: besides these he should have also a Set of large Instruments, amongst which may be reckoned these. *Crows Bills*, *Cranes Bills*, *Terebellum*, *Large Forcipes*, *Cut-*
ting Forcipes for Extraction, *Incision Stazers*, *Probe Siz-*
ers, *Dismembred Knife*, *Cutlins*, *Dismembred Saw*, *Ca-*
pital Saw; *Trussines* with heads for incision and Amputation; *Probes* of all sorts for Probation; *Syringes* for Injection; *Catheters*, *Wax-Candles* for Examination; *Canterizing Buttons* for prevention of *Hæmorrhagy*, and stopping of *Fluxes*; *Splints* and *Junks* for Fractures; *Tape*, *Taw* and *Sponges* for their severall uses.

Having thus given you an account of his Instruments, next we will proceed to Emplasters: and there give you a recital of their Vertues. Thus *Empl. Diapalma* or *Diaca-*
Of Empla-

Diacalcitbeos, hath a repelling faculty, is good against Inflammations, Healeth, Dryeth, and procures a Cicatrice. *Oxycroceum*, Emolliates, Discusses, Warms and Strengthens. *Diachylon magnum cum gummi*, Emolliates, Concocts and Digests, Attracts and Dissolves. *Empl. de Mucilaginibus*, this partly Mollifies, and partly Digests, and in some measure does Suppurate, and is generally reckoned amongst the Emollients and Suppuratives. *Empl. de Betonica* is generally used in Wounds of the Head, it restoreth Flesh being lost, it Digesteth and Cicatrizeth. *Empl. de minio* doth the same things as *Diapalma*. *Empl. ad Herniam* does both Strengthen and Constrict the loose parts, good in Obstructing of Fluxes, for Ruptures and the like, for which reason it had given it the name of Rupture Playster. *Empl. de Ranis cum z*, this is very resolving, being applied to venereal Buboës or Nodes, it acts its part very well in discussing them. *Empl. Stiptic. Paracelsi* an usuall Emplaster, applied to Pains and Aches, Contusions and Colds: for it warms and comforts.

Having given you thus a brief account of Emplasters: we arrive now to the understanding of the appropriation of Medicines, and these for the most part do fetch their names from the proper places to which they are to be applied, as thus for Example.

The appropriation of Medicines.

Cephalicks, Being such Medicines as are usually applied to the Head, so called from *Κεφαλή*, *Caput*.

Pectorals, Such as are appropriated to the Breast or Lungs, and these regard both the parts afflicted, and the matter afflicting.

Oreticks, These applied to the Stomach, the which having allowed a pleasant sharpness may contract it, and by their delicate Taste delight and please it.

Hepaticks, Ordered to the Liver for Strengthening it, correcting its Vices, Opening its Obstructions, and tempering its Inflammations.

Spleneticks,

Spleneticks, Properly prescribed for the Spleen, in order to help its Infirmities and relieve its Oppressions.

Nepbriticks, Such Medicines as are assigned to the Bladder and Kidnies.

Hystericks, These ordered and designed for the Womb.

Arthriticks, Such as appertain to the Joynts. And having past these, I shall next set down the severall names of Medicines as they are entituled, and shew you the reasons of their being so called, from their severall Operations. Thus,

Emollients, From their softning Quality which they have granted them.

Relaxers, Such so called, which are said to loosen any Part or Member.

Rarifiers, Being of thin and subtile Parts, can make Tough and Flegmatick humours rare and thin by their proper Qualities.

Aperitives, So nominated from Opening the mouths of the Vessels.

Attenuators, Such as by a gentle cutting Quality, do loosen the Bowels and open Obstructions.

Astringents, So called from their drying Quality, binding up the places where they are applied, and knitting the parts.

Attractives, These professing the contrary Quality, do by their heat and thinness draw humours to any part of the Body they are designed for.

Discussives, these gently do disperse Matter, and insensibly dissolve it.

Anodynes, By a gentle heat do ease Pain, and abate its fury.

Narcoticks, By their cold and stupifying Quality do ease pain also.

Carminatives, These Expell Wind by their anodyne Quality.

Chirurgical Institutions

Diaphoreticks, These provoke Sweat, and do work by insensible Transpiration.

Pyroticks, By their heat and burning faculty do burn the Skin.

Suppuratives, By a Natural heat do bring Bloud, raw and indigested Humours into Matter, and ripeness.

Incar natives or *Epouloticks*, Do generate new Flesh by changing Bloud into Flesh.

Agglutinatives, By their agglutinating Quality do joyn the Lips of Wounds together.

Cicatrizers, by their drying and binding Quality do skin and cover the Flesh.

Inward Medicines are also very various, and have therefore diversity of names given them according to the variety of their Operations, as for Example.

We call those *Catharticks*, which work downwards by Siege.

Emeticks, Those which contrariwise work upward by Vomit.

Diureticks, Those carrying on their designs by Urine.

Sudorificks, Those throwing forth the Excrements by Sweat.

Ptermicks or *Sternutatories*, Purging the Brain by Sneezing.

Salivaticks, Those cleansing the passages of the Brain and its glandules by Spittle.

Having thus given you in this small draught all the Utensils properly belonging to the Young Chirurgeon, with his Instruments and Medicines, and showing you their true appropriation; and the reasons of most of their Names why they should be so called:

I shall conclude these my *Chirurgical Institutions* with a brief and generall Division of Wounds according as they are offered by the best of Chirurgeons: with their differences, and Names of Solution of Continuity as they are set down by *Galen* lib. 4. Method. and thus they appear.

Trauma,

as touching Wounds.

11

<i>Trauma,</i>	}	A Solution made by a Wound in the Fleſhy parts.	The general Division of Wounds.
<i>Ulcus,</i> or <i>έλκος,</i>		An Ulcer in the Fleſh.	
<i>Catagma,</i>	}	A Fracture in the Bone.	
<i>Spaſma,</i>		A Convulſion or Diſtenſion in a Nerve.	
<i>Apoſpaſma,</i>	}	Avulſion in Ligaments.	
<i>Rhegma,</i>		Ruption in Muſcles.	
<i>Thlaſma.</i>		Collision or Contuſion properly in Veſſels.	

Theſe alſo do divide Union.

Eccymofis, { or *Inhumoratio*, Which is made when the Blood is poured forth under the Skin, and Coagulates, happening by Contuſions and Ruptions.

Anaſtomofis, [or *Apertion* of the Mouths of the Veſſels.

Diapedeſis, { or *Transcolation*, or *Exultion*, The Coat of the Sanguinary Veſſels being made thin, the Blood alſo being attenuated.

Anabroſis, { or *Eroſion*, The which is inwardly incident or to Veins and Arteries: bred out of ſome ill Juice which carrieth a mordent Quality in it.

By *Avicen*, Fen. 2. Lib. 1.

*The Differences of Solution of Continuity
are thus set down.*

Excoriation and Scarification, in the *Cutis*.
 A Wound or Cut, in the New and Cruent Flesh.
Ulcus or an Ulcer, in the Flesh with Matter.
 Puncture or Prick, in a Nerve.
 Incision or Section, in a Bone according to its breadth.
 Apertion or Opening, in Veins and Arteries.
 Scissure or Cleft, according to the length in a Bone.
 Contusion or Bruise, a numerous solution of Continuity.
 Attrition or Diminution, in the Extreame part of a Muscle.
 Fracture or Division, in Bones.
 Rupture or Burstness, in Pannicles, *Diaphragma* and the like.

*The General Differences of New or fresh
Wounds by Guido, and other Chirur-
geons of our Age are taken from these
Three. (viz.)*

1. From the nature of the parts in which they consist.
2. From the essence of Solution of Continuity it self.
3. From the proper Differences of the Solution it self excited out of the Wound.

1. Differences of Wounds are taken from the nature of parts.

And herein a Wound may be said to be either in a Similar or Organick part.

A Wound in a Similar part may be either, soft, hard, or between both.

That is said to be in a soft Similar part, when it happens in Flesh or Fat.

That in a hard Similar part, when it falls on a Bone or Juncture.

That between both, when it happens in a Nerve, Ligament, Tendon, Vein or Artery.

That Wound is said to happen in an Organick part, when it toucheth the principal part : or such a part, as is subservient to it ; or in a principall part not subministring to it.

That is called a Wound in a Principall part which happens in the Heart, Brain, or Liver.

That in a part subservient to these, when it happens in the *Oesophagus*, Windpipe, or Bladder.

That a Wound not subservient to any Member in a Principall part, as a Wound in the Nose, Ears, Eyes, Hand, or Foot.

The Differences of Wounds are also taken from the Essence of the Solution of Continuity it self.

And here also we may properly call them either Simple or Compound Wounds.

That is said to be a Simple Wound, which hath no other affect complicated.

That a Compound Wound, being consistent with many other complicated affects.

The Differences of Wounds are taken from their proper differences of Solution of Continuity it self.

And herein also may a Wound be said to be either Great or Small, Short or Long, Broad or Narrow, Superficial or deep, equall or unequall, right or oblique, retort or crooked: according to the Space, Quantity, Figure or Magnitude of the Division.

There are other Differences of Wounds, but these by Galen are taken for Outward Accidents.

As first arising from the reason of their Generation.
Then from the site or place of the affected part.

Such

Such differences of Wounds as are allowed to arise in respect of their Generation, may be allowed to be Disruption, Incision, partly one, and partly the other; as Puncture of a Nerve, Precision of a Nerve, and Precision of an Artery.

Such differences of Wounds as arise from the Site of the affected part, are either according to their Length, or Transverseness, happening in the beginning, middle, or tail of a Muscle.

There may be other Differences allowed by some, as such as happen from the Complexion of the Wound, and the like; but these are improperly so called.

Having thus far set the Young Chirurgion onwards in his Journey and Progress towards our ensuing Discourse; (in which Tract I have shown him how he is to be armed, and furnished with Instruments and Medicines:) we arrive now at the Discourse it self of Wounds both General and Particular, the which I have furnished and embroidered with variety of Historicall Observations and Notes worthy of his perusal. I shall not swell with too large a Preface, lest it appear so monstrous as rather to affright than satisfy the Young Reader. Concluding these Chirurgical Institutions with that Verse of the Poet:

Si mea displiceant, fac meliora precor.

A

TREATISE

O F

Wounds in general.

C H A P. I.

Of the Definition of a Wound.

IT is and hath been the current Opinion of all Ages, ^{what a} and amongst all Authours, that a Wound does take ^{Wound is.} its Definition from solution of Continuity or divorce of Parts. And although by Quacks and ignorant men there is made no great difference between a Simple and a Compound Wound yet that there is a very vast difference, no man that ever practised his Art with Judgment can deny. The truth is, the Scale stands in this case, as in others, with such kind of sluggish Droans and ignorant Pretenders, whose Cures may more properly be called Corruptions, and whose pretended Judgments may as consentaneously be owned onely as Ignorance plumed out and set forth with the best advantage of Impudence. But to leave those as Idle Companions, we fall to our present Task.

A wound is called a recent divorce, or solution of ^{The true Definition of a} Unity; or a division of Parts formerly united, without ^{Wound.} Matter.

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Of Wounds in General.

Matter. *Tagaultius* offereth it to be a new Cruent Solution without Matter or Putridness, happening in the soft parts by some outward cause. *Haliabbas* declares, that a Wound may be made by an animate or inanimate Body. *Pareus* writes, that it may happen from a blow or a fall. *Aquapendens*, by or from some outward Instrument: this offering it self with some violence in the soft parts. But there are other Solutions in other parts as well as in these soft parts, and every of these have allowed them their proper Names; the which I have already set down in my general Discourse of Wounds. And after these be pleased to take this as a true definition of a Wound, *That it is a Solution of Continuity bloody or cruent, and recent, made newly in the Flesh by such an Instrument as hath a power to occasion a divorce of parts formerly united.* There are several differences of Wounds, and these are either taken from their causes by which they are occasioned, or from their accidents wherein they are situated. The Causes may be allowed to be with, or without life: with life, as occasioned by the biting of some venomous Beast, or other such like Creature; without life, happening by some Sword, Stone, Blow, Arrow or the like. The Scituation doth afford and allow various Differences, as some Wounds happening in the Simple parts, others in the Organick. Under the Simple parts may be reckoned both the Sanguine and Spermatick, and to these do relate Muscles, Nerves, Veins and Arteries. Those we more properly call the Organick parts, which are nearer related to the whole bulk. Others thereof belonging more directly to some particular Member thereof. Now Wounds of the whole Trunk are generally allowed these, (*viz.*) as being of the Head, Neck, Breast and Belly. Wounds of the Articulations are those which are of the Joynts, as Shoulders, Arms, Thighs and Legs. But this you shall have more largely set down in this following Chapter.

C H A P. II.

Of the Differences of Wounds.

Galen, Avicen, Guido, and others when they write of the Differences of Wounds, they either draw them from the Parts, and these are either Similar or Organick; the Similar being either soft as Flesh and Glandules, or hard as Bones and Cartilages; or between both, as Nerves, Veins, Ligaments and Arteries: those called Organick, as being made in the Principall parts, as in the Head, Hand or so forth; and of these some are Simple, others Compound; the first we have already shown, the last may appear either mild or malign; the first being cured with ease, as a small Wound happening in the Flethy parts, the other being of greater danger, being complicated with malignity, as occasioned by a venenate Weapon, or poysonous Bite; and these are perillous, considering either their Impression, Time, Figure, or Parts wherein they are made and fixed, as falling in some noble part, being made either sooner or later; with, or without loss of Substance; in a large, middle or small Figure and the like: these also are to be discovered either by Sight or Probation.

And having proceeded thus far: we next come to view the difference between a Wound and an Ulcer. And that both Wounds and Ulcers may arise from Externall and Interiour Instruments, shall be made good in my following discourse.

A Wound, as is already laid down, is a Recent and cruent Solution without Matter; an Ulcer hath Matter joyned to it: And as a Wound is occasioned by an out-

The difference between a Wound and an Ulcer.

Of Wounds in General.

ward Instrument, having in it an Incisive power allowed to cause this breach : so also is an Ulcer purchased by an inward Erosion or erosive Humour. The Differences of Wounds, as *Avicen* offereth in *secund. Fenn. prim. Canon.* are taken from their varieties of Solution.

The Discriminances of Wounds are taken either from the respect of the Subject, as *Galen* writes 3 *Art. parv.* as some Wounds happening in a Homogeneous, others in a Heterogeneous part; or from the Essence, in which respect it is called a Simple Wound ; as he also observeth *Tertio Method.* to which neither Disease nor any other Symptome is complicated. On the contrary he alloweth that to be a Compound, to which somewhat is connexed or adjoyned : as you may see in 4 *Method.* Or they are taken from the quantity which is solved and divided : but of these more at large in their proper places. Wounds also may be made either by Puncture, Incision, Ruption, or Contusion. Those called Punctures, which are made by Thrusts with Swords, Pikes, Knives, Daggers, and such sharp pointed Instruments. Those Incisions, which are made lengthwaies, either by Knives or Backswords : (the Rapier being a very proper Instrument for making Punctures) or any other Instrument having a sharp cutting Edge. Those do cause Ruption, which by an egregious and violent Motion, can divel and divide the parts. Those allowed to Contuse, which are of a ponderous Existence : as Wood, Stone, Lead, Iron, Steel, Brass, and the like.

The difference between a Wound and a Contusion.

Ile conclude this discourse with the difference between a Wound and a Contusion : and thus as the first is occasioned by a sharp pointed or edged Instrument, so the latter is framed by a blunt and obtuse Instrument ; having in it a violent Motion allowed it to separate the parts.

C H A P. III.

Of Judgments and Presages of Wounds.

WE arrive now to the Healthfull or Lethall Symptoms of Wounds, wherein the Chirurgeon should not only appear φιλόδοξος but φιλόανθρωπος. And as it is one of his fair Graces and Ornaments to know well and understand what Wounds are incurable : so ought it also to be his greatest reason and prudence not to undertake such, as he justly must acknowledge he hath no Authority or encouragement from Art to be concerned with; and were these much practised, the Art of Chirurgery would not fall to that low degree as it appears now in.

To know the events of Wounds, and to presage the good or bad tidings of the Patient wounded, is a thing absolutely necessary for the Chirurgeon to understand; for in this case does the life of Man very oft consist and depend. The Prognostick signs of these are taken either from the substance, use, and action of any part; or from the proper essence of its disposition or effect: thus *Galen lib. 4 Therapeutic.* does declare, that large and great Wounds bring oftentimes much danger with them.

Wounds made by three squared Weapons are also dangerous, considering either the Excellency of the part afflicted, or the greatness of the affect, or the form and shape of the Instrument afflicting and causing the Wound.

Wounds received in the Head, or Thorax, or penetrating the *Peritoneum* do bring danger with them, especially if any of the inward parts be Wounded.

General Presages of Wounds.

Of the Head and Thorax.

Of Nerves
and Sinews.

Such Chirurgeons who by Anatomy do well understand the parts, may well conjecture, where Tendons or Nerves are pricked or cut, there follow Pains, Convulsions, and fear of *Delirium*.

Of the Noble
Parts.

Hippocrates telleth us, when the Bladder, Brain, Heart, Diaphragma, small Guts, Stomach or Liver are wounded, the Wound does generally prove Mortall.

In a bad
Complexio-
ned Mem-
ber.

Every Wound happening in a Member of the Body which is not well complexioned, and having a *cacochymick* habit, is not to be cured without difficulty; whereas on the contrary happening in a Body of good Constitution it speedily is cured.

Every Wound continuing its superficial march from one part to another, cannot be good, because in this case, Nature may be said not to have found a place to begin her work.

Not past
danger till
the 7th Day
be past.

Wounds are not past danger untill the 7th Day be over, neither are they void of accidents untill the Matter be well digested.

Happening
in the ends
of Muscles
worse then
in their mid-
dle.

No Tumour in large Wounds appearing is a bad sign.

Wounds in the ends of the Muscles are more dangerous then if they were in the middle: Nature having here planted Tendons and Nerves, the which do bring Motion and Sense to the body of the Muscle.

Never expect to cure Wounds of the Bones, Nerves, Tendons, Veins, Arteries, according to the first intention.

Close not up large Wounds by Suture, which are also deep, lest by your inconsiderateness, and unadvisedness, you permit corrupt Matter, Excrements, or other filth to lodge in the bottome.

Small
Wounds
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dangerous.

Superficial Wounds in some cases may prove dangerous; as Wounds happening in the Brain: whilst others being more deeply made, prove not so perilous happening in the fleshy parts.

Of Wounds in General.

23

Contused Wounds are opposite to Healing, for before you begin your Art of Healing you must produce the Contused part into Matter and Suppuration.

Wounds which are made round, or occasioned by a round Instrument, do require a longer time of healing, then those which are made by a streight Instrument.

Recent or new Wounds are sooner healed then such which are of a longer continuance.

Convulsion happening in Wounds is dangerous; for this declares the hurt of some Nervous part.

A Tumour in large Wounds presages well, for this sheweth that Nature is at her Expulsive Work, throwing forth the Excrements which lodged and were contained in the parts, and discharging them from the part affected.

Organick parts once divided deny any other or further Union.

Presages of
Mortall
Wounds.

That we for the most part, and most generally do call a Mortall or Lethall Wound, the which within the space of few hours doth cause Death, and is not to be retrieved by Art.

Wounds penetrating the substance of the Heart, must of necessity be allowed Mortall: for this being toucht, the liveliest Coal of mankind is soon extinguished; the whole Train of Bloud making its speedy address hither, from the Veins and Arteries as small Rivulets to the Ocean; this being its chief Engine of Life and Motion, and emptying themselves thus of their warmth and Spirits, every part doth take its share of its ruine: and thus out of this large profusion of Bloud, there follows a resolution of Spirits, the which brings a Chilliness upon all the Extreme parts, an extinction of Natures Heat, Syncope of Spirits, Banishment of Life, and a speedy yielding to Death; for as *Avicen* saith, The Heart can never suffer a long Solution of Continuity, neither endure an Aposteme with Life.

Wounds of
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Wounds of
the Heart.

Wounds of
the Brain.

These Wounds are for the most part accounted Mortall : but not every of these. For daily Experience evinceth, that part of the Brain hath been taken out, and the Patient hath recovered : and this you may see by Example in Wounds of the Head, though the understanding of the Patient have been lost. Those therefore are generally accounted Mortall, when a Nerve is hurt, when Blood, or other Humours do obstruct the Origination of the Nerves; when within a small time the putrefied Blood does produce a Fever and *Delirium*. The Membranes of the Brain being wounded do occasion Sneezing, and Vomiting, bleeding at the Nose, and the like; and if the substance of the Brain be wounded, there is perceived a Bilious Vomiting, and Fever; the Understanding grows stupid, the Memory flags, Sense and Reason bespeak new Quarters, and the whole Frame and Countenance do agree to alteration; this being the Well-spring of the Animall faculty. A Fever and Inflammation, two common Attendants on Wounds, happening in the basis of the Brain do make the Wound incurable.

Of Wounds
of the Liver.

Wounds of the Liver, if small, although dangerous, yet they admit of Consolidation; the whole substance thereof being as it were made of grumous or coagulated Blood: yet large Wounds happening here are very dangerous; because by reason of the defect of its Nutrition, the Heart languisheth and flags: and in large and deep Wounds of the Liver the *Vena Porta* being cut, the Patient so wounded dies of a Flux of Blood.

Wounds of
the *Vena Cava*.

Wounds received in the *Vena Cava* within the *Abdomen* or *Thorax*, are declared Mortall; for that Blood which formerly used to replenish and furnish the whole Body, is by reason hereof run into a confused mass; and is past the skill of a Chirurgeon to cure by any Topical applications.

Wounds of
the Dia-
phragma.

Wounds received in the Fleishy parts of the Midriff may be curable, but happening in the Nervous parts are generally

rall mortally, because a *Delirium* goes along with them, occasioned by Inflammations; and sometimes Convulsion, because it is a nervous part, and without blood, and in continuall motion. And for a generall Rule let it be taken, that nervous Bodies do never unite, being once divided; especially here where they are in continuall motion.

The Lungs being wounded, the Breathing is difficult, ^{Wounds of the Lungs.} the Pipes and Organs are out of tune, and a troublesome and incongruous musick is made, with false Respiration. They are generally mortall, if a large Vessell belonging to them be divided. If any Wounds of the Lungs be cured, they commonly do prove so mischievous as to turn into *Fistulas*, and so in length of time do spin a man's life out by *Marasme*, and run him into a Consumption. And that which makes their healing so difficult is, because in their motion they are always moved, and in coughing they are lacerated.

Wounds of the Spleen, because it acteth the part of a second Liver, and hath a common benefit allowed it, the ^{Wounds of the Spleen.} which it distributeth to the whole Body, and therefore is a necessary Instrument, are dangerous: and yet not so perillous as the other Parts, which we have already discoursed of. And if these Wounds have not a great Hæmorrhagy joyned to them, they are not so deadly, but they may be cured.

Wounds here happening, although not on a sudden, ^{Wounds of the Bladder of Gall.} yet in process of time do assuredly bring Death with them, and so are not to be cured. For it is an exsanguous and nervous part, and so denieth Union; therefore can we no waies apply convenient medicines to it. Besides which also, the Humours do corrupt the parts unto which they are sent.

The Stomack wounded brings much terror. The ^{Wounds of the Ventricle.} Wounds here generally do prove mortall which do happen in its upper Orifice, or in the Nerves distributed on the Stomack: for these do afford it that exquisite sense which

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it

it hath, and upon their incision, Syncope and Convulsions do frequently follow. If it be wounded in the upper part, it may be cured, because in that part it hath allowed it a small part of Flesh.

Wounds of
the Small
guts.

Wounds happening in the Small guts are seldome cured, they being of a membranous substance, and of an exquisite sense. Wounds of the Great guts admit of a more easy Cure, being both more large and more thick.

Wounds of
the Kidneys.

These are not mortall. If the Wound do penetrate into the Cavity it self, for the most part an Ulcer follows, which consumeth the whole Kidney.

Wounds of
the Mesentery.

The Mesentery being wounded, inevitable Death must follow. For as there must be a great Flux of blood ensue from the Veins inserted and planted therein; so also must there needs be a great loss of Chyle, the milky Vessells being either incised or lacerated.

Wounds of
the Wind-
pipe.

The *Aspera Arteria* being hurt may be cured. If the Cartilaginous Rings be hurt or wounded, expect no cure thereof: for these little hard Cartilaginous bodies being without blood, and always in motion, if they be wounded, the Breath which passeth through it is a great impediment to the Cure, and joyning the lips of the Wound together.

Wounds of
the Spinall
marrow.

Wounds of the Spinall marrow are always mortall which do happen in the Neck, or near the Head: but those that happen under these are of less danger.

Wounds of
the Bladder.

These are seldome perfectly cured, but there remains some glecting. But those that are made in the musculous part of the Bladder may be cured.

Wounds of
the great
Veins, Arteries
and
Nerves.

Wounds of the great Veins and Arteries are generally mortall, and Wounds of the great Nerves are incurable. The Jugular Veins being wounded are seldome cured, by reason of the great Flux of blood hereupon made, drawing forth Man's vitall spirits, and no proper method being found out to hinder this Flux, without danger of suffocation.

Take care of cutting the Artery which passeth through
the

the fore-part of any Muscle, but shun it by Exploration of its Pulse, and keep the Vein if possible inviolate. If the recurrent Nerves be divided or wounded, there follows loss of Speech, Sense and Motion. Thus have I run through the Presages of Wounds curable and incurable; in which the young Chirurgeon may plentifully satisfy himself.

C H A P. IV.

Of Curing Wounds in General

Galen, *lib. Art. medic. cap. 90.* saith, the common Intention required in the Cure of Wounds is the Union of the Parts disunited: and this is performed by Nature as the proper Agent, and the Cause effecting it, assisted by its virtues, and a convenient Nutriment. And thus as Art does remove the Impediments, Nature her self does assist towards the Cure of the Disease, which of her self she cannot readily perform, where her native Heat is weak, the Bloud vitiated, or the Flux large; every of which are to be corrected and amended. As the native Heat is to be preserved by a good Diet, and well ordering the Body. Where the Bloud is vitiated, this is to be amended and corrected by Purging. Where it flows too much, this is to be repelled, revelled, or derived, and the like.

General Rules.

Hippocrates does propose two sorts of Wounds: the one he calls Simple, the other Compound. The Simple he calls Solution of Continuity, having no other Affect joy-
ned to it, perplexed with no Fluxion, not abounding with any ill Juice, or undermined with any *Intemperies*, without any apparent Cavity or Loss of flesh. A Compound Wound, on the contrary, hath the repute of Loss of flesh,

Hippocrates his difference between a Simple and a Compound wound.

an adjunct Cause, Affect, or Symptome. A Simple wound taken therefore in its prime sense does onely require Desiccation. A Compound, to which may be annexed Contusion, hath also a mixture of Inflammation; and this hindreth Union and Agglutination. In this case therefore the Chirurgeon is first to cure the Inflammation, then to proceed to the Wound. Green wounds, and their neighbouring Parts, are but smally inflamed, if Matter may be procured: for Wounds do onely then inflame, when they do not suppurate. For they suppurate by a strange Bloud, and Heat, untill the putrefying Wound occasioneth another Matter. And if Exition be not made for this Matter, it being suppressed, it excites Inflammation about the wounded part, and breeds and begets an ill Habit therein, and rendreth both the Wound and its neighbouring parts fordid and corrupt.

The chief Intention in curing a Simple wound is Desiccation, this being most proper for the purpose: and whereas the whole Body does abound with moist Humours, these also in some measure are to be dried up by Abstinence, and a thin Diet. Where any part of the *Cutis* is incised, no Oleaginous medicine can take place: for this easily penetrates and entereth the Pores of the skin, and does there create a Moisture, in stead of Desiccation or Driness; and may therefore be allowed rather to hinder then set forward the Cure. But this chiefly belongeth to a Simple wound, and such as is superficial: but our Discourse doth mostly tend to other Wounds, where the chief Scope and Intention is to unite those Parts which are divided; which thing is performed by these six Intentions: (*viz.*) by Stopping the Flux of blood, and hindring Inflammation thereby; Removing all strange and extraneous Bodies; Bringing the Lips of the Wound together; Maintaining their Union; Keeping their Substance and Temper entire; and Preventing all future Accidents. Every of which expect to meet in their Order.

C H A P. V.

Of Stopping an immoderate Flux.

AS the Heart is the chief Watch of man's Life, whose pulsifying wheels do give motion, life and vigour to it, by having adjoyned and allowed it its main Spring of Blood which is given it from the Arteries, which Spirits thence ensuing do operate as the chief Workman therein, and without which Man would soon run into dissolution; and as the Blood is the Treasure of Nature, without which Life appears but as a dead clod: so ought we to study its continuance with us, and in large Fluxes occasioned either by Incision, Ruption, or Division of any large Vessell, with care and diligence to study its speedy reserve, by applying such Medicines as may command a quick obstruction of this Hæmorrhagy. The Wound which we intend to treat of in this place is not of the large Vessells, being either incised or lacerated: but when the smaller Veins are incised, this Flux is to be speedily stopped, unless it spontaneously and timely do restrain and check it self.

And in obstructing or calling back this Flux, we ought to consider these two things: (*viz.*) How much the part may be suffered to bleed, before it be stopped; and then, How this Obstructing operation is to be performed. To consider two things in stopping of Fluxes.

And as touching the First; The Temper, Constitution, Time, Complexion and Habit are to be considered. For if the Patient be of a Sanguine Complexion, corpulent Habit, having large Vessells, and it be Summer-time, here the Patient may be permitted to bleed plentifully, both for preventing Inflammation, and Fluxion, and Fever. And if you meet with a Patient of contrary Qualities, di-

Eight methods in stopping of a Flux.

1.

verify your Intentions, according to such Rules as you have prescribed, contrary to the former.

As touching the Second; There are offered Eight methods of stopping this Flux of blood prescribed by Dr. Alexander Read, the which I shall here briefly set down.

The First is performed by Pledgets, Buttons, Dossills, Tents, and the like, being armed with some Restrictive, that is, moistned in the Whites of egges, Vinegar, and Water, &c. to which also may be added a little Bolearmeniack: these to be applied warm; for nothing doth greater injuries to Wounds then Cold.

2.

Note.

The Second is Deligation of the Vessell which sendeth forth the blood. But this oftentimes proves troublesome and uncertain. And where you intend to use this method, separate the Nerve from the Vein; for they generally keep company together throughout the whole Body; lest by unadvised neglect of this, you do deprive the Nerve both of its motion and sense, and hereby purchase great pain to your Patient. Take care also that the Ligature be not made too strict; for this is a ready way to cut and divide the Vessells asunder, and hereby create a new Flux.

3.

A Third method is performed by Sarcoticks or Incarnative medicines, such as are Myrrh, Aloes, Frankincense, Dragons blood, Mastick, Amber, *Olibanum*, Bolearmeniack, Powder of Hares hair, and the like, mixed with the White of an egge, Vinegar and Water, and thus made into a good Consistence, and so to be applied to the affected part. Before which application cleanse the Wound from all grumous and clotted blood, and every other excrementitious matter; and with a Sponge being dipt in some Restricting Liqueur moisten the parts: then may you apply your Restrictives. Over which apply convenient Boulsters and Rowlers. Ever observing to begin your Ligature or Ligation in the lower part, making it ascend upwards, and so to pass above the Wound; both for stopping the Flux of Humours coming to the Wound, and also for

com-

compression of the Coagulated blood to the Wound it self, for its Exition.

A Fourth method is performed by Restrictive Injections : these to be used when the wounded Vessells ly low or deep, so as we cannot reach them with our fingers. And for this use these are proper, Bolearmen. Plantane, Comfrey, Knot-grass, Yarrow, Shepherds-pouch, Red roses, Balauftians, Pomegranate-rindes, Oaken leaves and cups, Myrtills, and the powder of a dried Toad burnt in an earthen vessell, having allowed it a strong restrigent quality. These and the like may be made into Decoctions, being boiled in some restrigent Wine, or some convenient Liqueur.

The Fifth is acted by a transverse Incision; for this procureth a gathering up or shrivelling of the Vessells towards their Originations. This by *Galen's* advice is to be attached by the Hook, and then the Vessell to be twisted.

The Sixth is performed by Caustick, and this either actually or potentiall. This for the most part is requisite in Amputation, and not to be used upon every triviall occasion : for as it brings fear to the Coward, so also its effects are not alwaies certain. And before you use these, be sure to cleanse the Vessells from all grumous blood, that you may perfectly see to what parts you apply them. For by an unadvised mistake of putting this into memory, and so into action, you onely cauterize the coagulated blood, the which falling off, there is made a fair way for a new Flux.

The Seventh is performed by Revulsion, as by Frictions, Opening of a vein, Ligatures, and Cupping-glasses : these being applied to the opposite parts, if need require are to be repeated.

The Last is to cool the whole Body, and hereby thicken the Blood, and make it less apt to flow, by inward using and taking of Rice, Lentills, Astringents, Astringent Fruits, and sharp Wines.

C H A P. VI.

Of Removing extraneous Bodies.

THE next duty and Intention of a Chirurgeon is to remove all extraneous Bodies, which may be allowed to hinder Union and Conjunction of the parts disjoyned. And that every thing herein may be acted according to Reason, Judgment and Art, we are first to enquire into the Shape and form of the Instrument which is thus lodged: and this may be collected and gathered from the Contemplation of the nature and diversity both of the hurt Parts, and also of the Matters therein fixed. And these two being considerably weighed and understood, the third thing, which next doth offer it self, is the true method of Extracting these. And because the Matter and Substances hereof may be various, as being made either of Wood, Iron, Glass, Bone, Brass, Lead, or the like; and their Figures as diverse, being said to be either Long, Round, Square, or Flat; and whereas their Number is different, being One or Many, Simple or Compound; and their Magnitude is various, being Greater or Smaller; besides these, their Habits being as strange, some Arrows made with sharp Iron heads fixed to them, others concave Instruments, and these also differing in their vigour and faculty, some being sent with, others without poison: These and every of these ought to be well considered. But expect more hereof in *Gunshot-wounds*.

Hippocrates lays this down as a Maxime, That he who would deal with Wounds aright, ought well to understand the Diagnostick part of his Art, before he undertakes the Therapeutick; and also to be well skilled in the nature of the Parts, before he prescribes a Reason for a Cure: it being one of his greatest Ornaments, to understand

stand which Wounds are curable, which are incurable, and which are difficult to cure. I shall shew the Instruments, and farther discourse of them, at the end of this Chapter; and proceed for the benefit of the young Chirurgeon.

He is to observe and take notice, that in Extraction of extraneous Bodies, he well consider the Shape and figure of the Instrument or other Body which is to be extracted, and how deep it hath penetrated; and being well skilled in Anatomy, he may easily understand the frame of the Parts wherein the Weapon is infixed: that hereby he may with more pleasantness, and less fear, wisely undertake the Patient, to his own credit, and the Patient's ease and comfort. And to every of these he is to understand that he hath these four things adjoyned: as first, to know when it is most fit to extract these Bodies; next, what way is the best for their Extraction; then, what Figure is most proper; and then, what Instruments most requisite for the performing of these. I shall enlarge a little upon each of these, they being very materiall for the young Chirurgeon.

If the pain be intolerable, and the infixed Weapon may commodiously and with safety be drawn forth, if it be so loosely fixed as by a small moving it will separate from the Part, draw this forth at the first, for hereby you will both ease pain, and procure rest to your Patient. If the Weapon be poisoned, deferre not Extraction, for this bringeth the whole Bulk into dissolution: and therefore though you are forced through Nerves, Veins, or Arteries, to cut your way, yet this is not to be delayed. And that the young Chirurgeon may not mistake herein, he may know the Flesh poisoned by a Weapon thus; it is of a strange colour, it appears pale, sublivid, and as it were dead: in these cases he ought to scarify untill he meeteth with fresh blood; and this he is to do untill the Poison be removed. After which he is to apply a Cupping-glass, which is the best Instrument for the calling of this forth. Besides the former token, you will find it attended and accompanied

F

with

Of Wounds in General.

with extraordinary Pains, with Inflammations and pungent Girdings, especially about the wounded parts, with a Heaviness and *Torpor* of the whole Body, and with *Syncope* and Alienation of mind. And besides these, the Wound hath an odd Smell with it : and the Weapon that was infixed, (if poysoned) when drawn forth, and after cast into the fire, doth upon its burning turn black, and send forth a fœtid Smell. And therefore in these cases, where Danger of life is so much threatned, we ought to use all our Experience and Reason to storm the force of this Enemy, and batter down and overcome with convenient Medicines the vigour of its virulency. But of this expect more also in *Gunshot-Wounds*. Besides this also, in the case of a large Flux of blood, which may also put the life of man into jeopardy, here are we to stop our hands : if horrible Pain, *Syncope* or Convulsion appear, delay your Extraction.

As touching the way and method how to doe and perform all these ; That in the eye of all men must be allowed to be transacted the best, which is done with most ease.

And as to the Figure ; If possible, gain the true figure of its Entrance, for this does make the Extraction more easy.

These and such other matters as may more advantageously be here presented shall appear in *Gunshot-Wounds*.

And since I have already declared to you how the Body of man may be variously assaulted by diversity of Instruments, I have here also expressed in this following Figure how his Parts may be contused, pugged, incised and lacerated, by Clubs, Stones, Swords, Pikes, Faulchions, Arrows, Shot, and the like : against which, on the contrary side, I have also delineated such commodious Instruments, as are and have been allowed as most proper for the Extraction and discharging of the same out of the wounded parts. And that every thing may be done and performed according to Reason and Art, as touching the Extraction of Weapons or any other extraneous Bodies out of the Body ; We are first to enquire after the Instruments which are to execute this :

this: and these ought to be accommodated to the Part, the which does require their aptness for the occasion, both as touching their Figure and Shape. And because, as we have already noted, it is requisite for these Instruments to be of various and sundry Shapes, we ought to study a most exact Form of them for compleating this Intention. And here amongst the rest I shall present you with these following, whereof in the next Leaf you have the true Shapes and Forms. And the first which does offer it self is *Terebellum*, this being an Instrument, as you may see, let into another, the which having a thin and pointed Screw at its end, may take hold of a Bullet, Splinter of Wood, Bone, or the like; and having once entered it, it brings it away with it. This is marked at the Letter *A*. The second is a Hook to draw forth any Matter or Bone which lies superficially. This is marked at *B*. The third is a large pair of *Forcipes* with Teeth, hollowed in the middle, the more apt for catching hold of any Bullet, Shot, or any other superfluous matter. This is marked with *C*. The other pair of *Forcipes* are made without Teeth, but hollow also; and this is a very ready Instrument for laying hold of a Bullet, having both allowed them strong Shoulders, for the more prompt extraction of any Body. And this is marked with *D*. The last is called a pair of dented Cranes-bills, being bent or bowed, accommodated chiefly for deep Wounds; and being more slender then the former, may with more ease enter into the Orifice of the Wound. And this is marked at the Letter *E*.

The Weapon being extracted, what your next Intention is, shall be more at large declared in my Discourse of *Gunn-shot-wounds*, this being but as a part and abstract thereof.

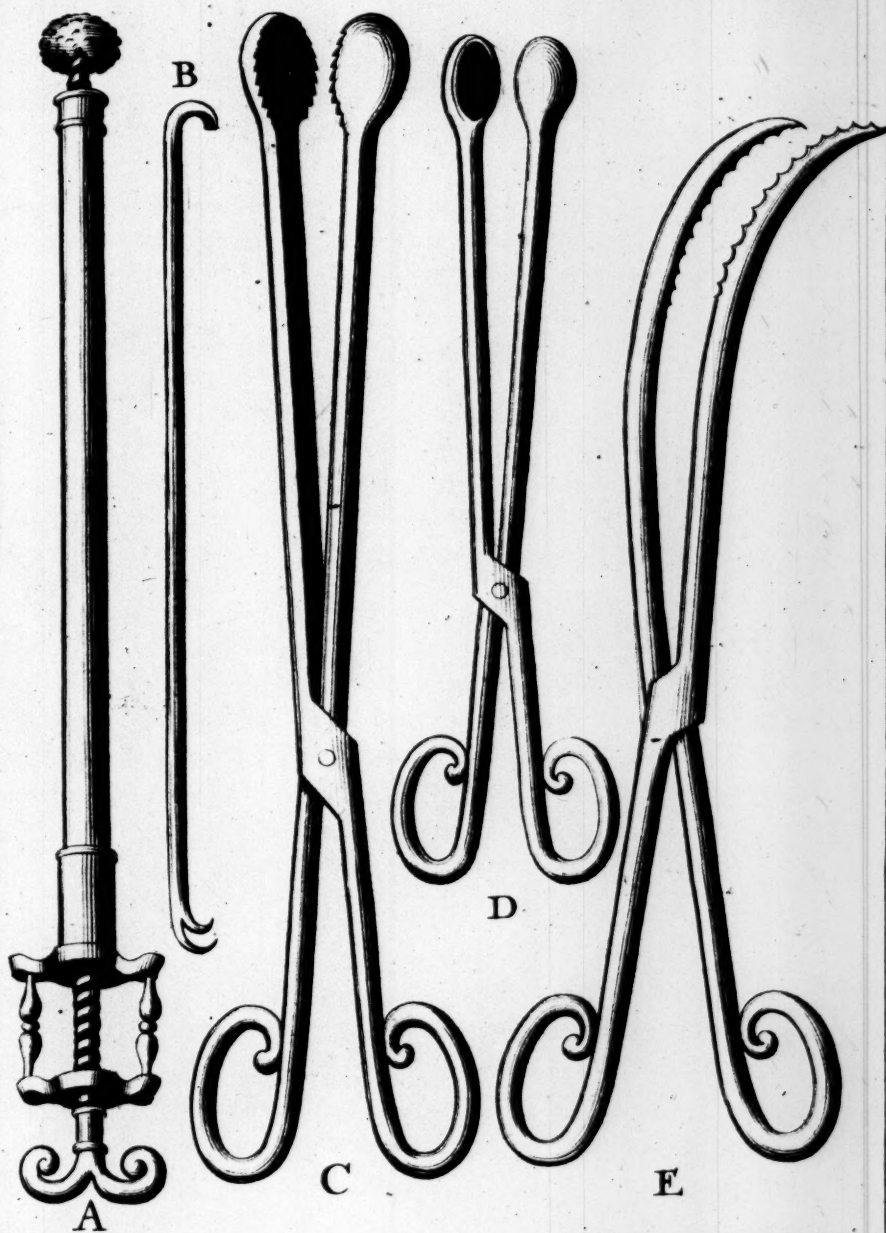
And having thus shown you how to remove extraneous Bodies, my next Intention shall be, to declare how Parts which are thus separated are to be joyned, and how the Divorce of Parts thus made is to be brought into a mutuall Contacture, according to Art.

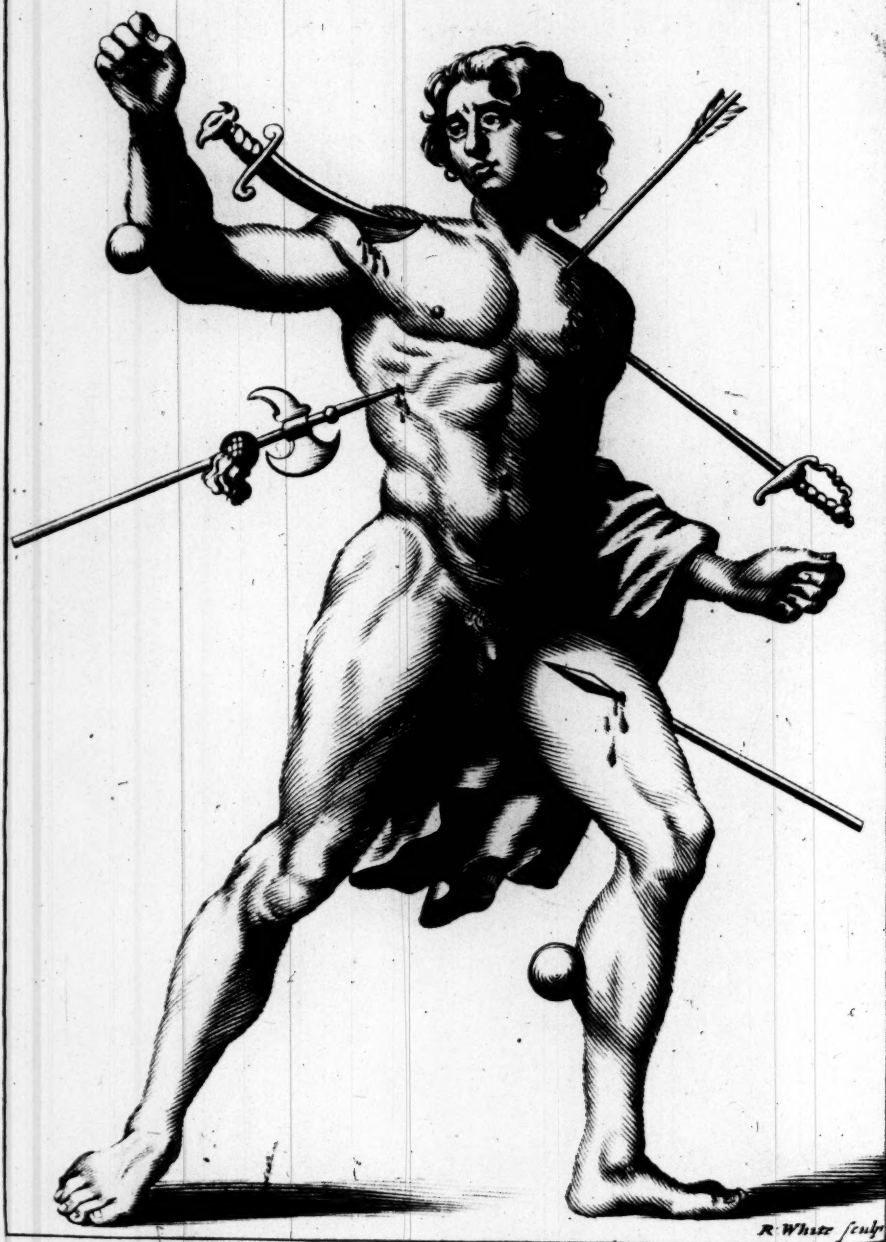
C H A P. VII.

Of Joyning of Parts separated.

OUR next Intention is, the Uniting and Joyning of the separated and divorced Parts : and this is performed by bringing the Lips of the Wound together, which were formerly disunited. If it happens to be a simple Wound made in the flesh, with which neither Symptome or any other evill Accident or Affect is complicated, this may be united by Ligature, leaving the rest to Nature. But if the Wound be so large, as that it is not to be brought to Union by Ligature, here are required agglutinative Assistents, the which are to have in them a drying quality, hereby consuming and drying the moist Excrements and Humidities, and prohibiting their Influxions. And therefore in this case give me leave to premise, that in large Wounds, Purgation is very proper, and that in these three respects ; both as touching the Excellency of the Part, the greatness of the Affect, and the Malignity of the matter, as *Hippocrates* writes. Oyl here ought not to be applied to these Wounds, for it does both humect and relax : Sarcoticks and Driers being most proper Medicines here to be used. Besides this, Oyl rendreth the Wound more sordid and putrid. After this, we are to study the naturall Temper of the Part ; and where it is once estranged by Air, Meats, Drinks, Evacuation and Retention, Sleepings and Watchings, and the like, these are to be corrected and amended. As for example, if a Wound do prove very moist and sordid, and sendeth forth much Matter, here are we to study its Alteration, drying this up by a slender Diet, Purgings, and the like.

To this also belong the diversity of Excrements which do usually accompany Wounds ; and these are of three sorts,





forts, (*viz.*) *Ichor*, *Pus*, *Sordes*. *Ichor* is a thin indigested *Lymphe*: and this issueth either from the Veins, or the wounded Part. If from the Veins, it is thin and waterish, and hath no bad Smell; and according to its Colour you may guess of what Humour it does proceed. If it ariseth from the wounded Part, its Smell is unpleasant, and this is called *Sanies*: and according to the degrees of its Corruption, it sendeth forth a greater or lesser quantity of its ill smell and savour. The second is called *Sordes*, being a viscous Excrement firmly adhering to a Wound: and the cause of this thickness is assigned to a dry Constitution of body; sometimes to the error of the Chirurgeon; sometimes also to the Air. The third is called *Pus*. This is generally smooth, white, equall, having no ill Smell, as *Hippocrates* describeth it. The causes which generate these three are held to be the naturall or unnaturall Heat; the first being the cause of Digestion, whereby a laudable Matter is generated, the unnaturall heat working up moisture with it, so causeth Putrefaction, and that ill smell we generally do perceive.

Three sorts
of Excre-
ments of
Wounds.

And having thus described to you the unnaturall and unkind Substances which do hinder Union, I next proceed to Pain and Fainting: the first being purchased in the most slender Wound, the Skin being the Instrument of Touching: and as for Fainting, this is as common in compound Wounds, and frequent in simple Wounds. And that this is true, how oft have we seen your delicate Ladies faint at the cut of a Finger or the like, and the sturdy Plow-jogger to faint at Bleeding? But of these in their proper places: and to our present Task, as touching the Uniting of Wounds disjoyned.

This may be performed by Ligature, or Suture, or Dry stitch. Ligature is most proper in Wounds made lengthwaies, being superficial. And this ought not too strictly to be applied, nor yet too loosely; making them of a convenient breadth to take in the whole Wound.

As touching
Ligature.

ture is performed by Needles, or a Dry stitch: and the
 As touching Sutures. Stitching-needle is as convenient an Instrument as any the
 Chirurgeon does carry in his Plaister-box: for with it he
 may ease Pains, free the Wound from Inflammation, and
 himself from Inconveniencies. In the use hereof, care is
 to be taken that the Lips of the Wound be brought to an
 equall distance, not violently, but gently bringing them
 together, not extending one more then another, equally
 to answer each other in its superficies. The Dry stitch is
 mostly used when exteriour Beauty does seem to be im-
 paired; as a Wound happening in the Face, &c. And
 As touching the Dry stitch three things to be observed. herein are we advised, according to *Ambrose Parrey*, to
 observe three things; as the Preparation of the Cloath,
 the Method which makes the Wound joyn, and then the
 Form. As to the first, the pieces of Cloath must be strong,
 answering each other alike, hemmed about the Wound,
 and loose at the other sides. It is Emplasticks which
 makes them agglutinative. As for their Forms, they are
 to answer the Shapes of the Wounds, most fit for the
 bringing them close together. Now if the Wound be
 deep, you are to take up a pretty quantity of flesh with
 the Needle; and if in this case you should make a super-
 ficiall apprehension, and the Wound hereby be superfi-
 cially agglutinated, in the bottome of the Wound may be
 left remaining such a *Saries* or Collection of Matter, which
 may frame an Abscess or hollow Ulcer.

Guido's three
 sorts of Su-
 tures.

Guido proposeth three kinds of Suture. The first he
 calls the Agglutinative Suture, commonly called the In-
 carnative Suture, the which does make best for our pre-
 sent purpose. Suppression of the blood, which is done
 by the Needle drawn through either Lip in form of a Glo-
 ver's Suture, is by some called *Sutura continuata*: by
 this the Blood is easily depressed. This is generally used
 in Wounds of the Guts, or when any large Vessell is woun-
 ded. The third is called the Retentive Suture, the which
 is most proper in lacerated Wounds in which the Flesh is
 lost.

Of

Of the Incarnative Suture *Guido* proposeth 5 kinds. *Guido's five methods of Suture.*
 The First is done by the Needle being drawn through each Lip by the right hand, holding and placing the stitching Quill with the left, hereby making the Lips of the Wound equall. The Second is performed by taking divers Stitches, some distance from each other, through the length of the Wound, bringing the Wound to a proportionate evenness: and in every of these Stitches the ends of the Thread are to be cut off near to the Knots. The Third species is performed by drawing the Needles through each Lip, and then by the same Office drawing them back again, and so by degrees bringing the Lips of the Wound closer, by annexing them to some small substance, the which by twisting the Silk thereon may by degrees close up the Lips of the Wound. But this is the worst of the rest. And in all Sutures take this Observation with you, that before you make any Suture, you do deterge all the concreted Blood in the Wound, both for preventing Inflammation, and furthering Agglutination. The time of leaving the Sutures off, is, when Union is perfected, or Agglutination made: the which do vary, according to the largeness of the Wound, and in respect of the Habit of the body. In great and transverse Wounds they are generally kept for eight days; in small Wounds, not above three in some.

I will conclude this Chapter, with acquainting you of the three Uses of Suture. For it is used either for Agglutination of Wounds; and this is called the Incarnative Suture: or to keep the superficial parts of the Wounds in a reasonable distance from each other; and this is called the Retentive Suture: or to stop the Flux of blood; and this is termed the Suppressiv Suture. Thus have I enlarged upon the Joyning of the Parts separated and divorced. We next proceed to the Eighth Chapter.

C H A P. VIII.

Of keeping the Parts joyned, and preserving their Substance entire.

WE come now to the Fourth and Fifth Intentions: and because it oft falls out that some Heterogene Substance does happen within the Lips of the Wound, as Hair, Dirt, Oyl, and the like, the which do hinder Agglutination, this with care is to be prevented; and that we may truly study the defence of the wounded Part, and keep it from harms, there is required much care and industry. For we may with Union in Wounds, which is Nature's work; but may miss of our aim, if the Temper of the Part be not sound. The Body also being weak, Nature does very readily throw down her Excrements to the wounded Part; whence doth arise a Dyscrasy both of temper and humour. Besides which, the Part being it self much weakned, there cannot in any reason be expected a good Nutriment, and hence must follow Excrements, the which not being well driven out from the affected Part, there must consequently be created a moist Intemperity therein. And besides these, by reason of this Intemperity, expect no fair closure of the Lips of the Wound, this Matter inwardly lodged creating a repletion of *Sanies*, which hath force and vigour enough to create a Dyscrasy.

And that we may therefore be armed against all these troubles, these Sarcotick and Incarnative Medicines should be of a cold faculty, that they may repell the Matter which flows; also drying, and that in the second degree,

to suck up these inward Humidities; and also stiptick, for strengthening the weak parts. And here *Guido*, after his Sutures made, does sprinkle this Powder on the wounded Part: *R. Pulv. Thur. ʒij. Sangu. Dracon. ʒj. Bol. armen. ʒiij.* Powder. mix them, and apply them either in powder, or made into a Cataplasm, by mixing them with the White of an egge, a little Vinegar, and powder of Bean-meal. And this he orders to remain on for four days. We of late, according to a more modern practice, do use this method after the Suture, first sprinkling on the restrictive Powders, then covering them with some drying and agglutinative Empl. as *Diapalma*, *De minio*, and the like: upon which we apply convenient Boulsters, and conclude the dressing with convenient Rowlers.

Now of this sort of Colletick Medicines we have very many, both simple and compound, set down for our advantage. Amongst the Simple may be reckoned these, having in them a drying and binding quality, and void of all sharpness: (*viz.*) *Bolearmen*. Red roses, Mastick, *Olibanum*, Sanicle, Plantane, Betony, Agrimony, Scabious, *Veronica*, Gum. *Elemn.* Sage, *Lap. calaminar.* *Lap. Pompholyx.* Amongst the Compound are *Empl. Stipticum Paracelsi*. *Balsam. Peruvian.* *Unguent. Basilicon*, *Aureum*, *Fuscum*, *Nicotian.* *De Panac.* *Colon.* *Linimentum Arcei*, *Desiccativum rubrum*, *Diapompholygos*: all these generally allowed Sarcoticks. And how much their drying quality is required, is to be collected from the time of the year, and the strength and constitution of the Patient. Thus a Simple wound does onely require a superficial Dressing; whereas a Compound and deep wound does as necessarily request the use of Tents and Dossils, to be armed with some of the former Medicines.

Three things are to be observed in the use of these, as for Pledgets, they are to be applied larger then the Wound; these to be armed with such Medicines as have an agglutinative quality in them, which can stop Pain,

Three things to be observed in the use of Tents and Dossils.

what are they

A Digestive
of the Au-
thour's.

Another.

assuage Inflammation, and repell the Humours. Of which sort may be reckoned this; R *Terebinth. lot. in aqu. Plantag.* ʒijß. *Mel. opt. depurat.* ʒj. *Unguent. Basilic.* ʒij. *Vitell. ovor. no. ij. misce ad ignem, sine addendo Pulv. Myrrh. Alo. an.* ʒj. *Croc.* ʒj. *misce pro Linimento,* Or this; R *Ol. Hyperic. cum gum. Ol. catellor. an.* ʒij. *Gum. Elemn.* ʒß. *Pulv. Veronic. Salv. Myrrh. an.* ʒj. *Tereb. Venet. vel Cupress.* ʒijß. *misce.* Neither are we to study the filling up with Flesh onely, but to prevent every *Hyperfarcosis*, by the application of some Cathæretical medicine, as dried Lint, burnt Allome, Verdegreece, Præcipitate, calcined Vitriol, or the like. These to be sprinkled in Powder, or applied in form of an Unguent, by mixing therewith *Unguentum Rosatum, Pomatum,* or the like.

The Wound being digested, mundified, and brought to a good pass by Sarcoticks; nothing now remains but to procure an even Closure or Cover, which is to be done by Epuloticks. And here also are we to consider what Cicatrice may herein be allowed as best. Where we may affirm, that that Cicatrice is the best and fairest, which does represent the natural colour of the *Cutis*; where we may see Nature at work to help forward in the progresse by her effecting cause, which is resident in the true and sound Skin, expanding from thence a small and thin veil here, as she doth in Fractures, allowing there a *Callus* to fall from the ends of each Bone for the Union and compleat Conjunction. Now her adjutant causes which promote this work are Epulotick medicines: and these also are either simple, or compound. Amongst the Simple are reckoned Comfrey, Tormentill, Sanicle, Betony, St. Johns-wort, Golden Rod, Plantane, Shepherds-Pouch, Red roses, Balaustians, Bolearmeniack, Sanders, Dragons blood, Mastick, *Olibanum*, Amber, Lead, Litharge, Tutty, the Pompholyx Stone, and many others. Amongst the Compound are *Unguentum Tut. Album Camphorat. Rosatum, Populeon, Desiccativum rubrum, Diapompholygos, Diapalma,*

Diapalma, De minio, Sacchar. Saturni, with many others, variety of which are to be found in the Dispensatories.

C H A P. IX.

Of Removing of Symptoms and Accidents.

WE are now come to the last Intention, which is the Correction of Accidents: and these are very various, and do as diversly happen in large and deep Wounds, and do keep up Solution of Continuity. And these are allowed to be nine in number: as Pain, Inflammation, Hæmorrhagy, *Delirium*, Fainting, Fever, Crudity, Palsey, and Convulsion. And these as they are Symptoms in respect of their greatness and vehemency, so also in many cases do they threaten Death. The Correction of these Symptoms is to be as much regarded as the Cure of the Wound.

And First therefore, as touching Pain, this by *Galen*, 2. *Aphor.* 12. *Meth.* is allowed to be a sad and heavy sense of change, following a Disease as a shadow doth a substance. This most generally is the cause of Fluxion, overthrowing the Faculties, be the temper and habit of the Body formerly never so good: it being Pain's chief property, to attract Inflammation, by stirring the Humours into a Combustion: and it falls here as in other cases, the weakest is seen to go by the wall. For generally the wounded Part is forced to see whatsoever Pain puts to it. And therefore is it accounted a great Intention in the Chirurgeon, to allay the fury of this Enemy, and quell this troublesome authour of Fluxion. And here ought he also to remove his Medicines very often, lest by their too

I.
Pain.

Of Wounds in General.

long stay Pain be excited. Then is he to enquire into the cause and occasion of this Pain; and the Species and way of the Humour by which it passeth, and which way Nature intends it; and here with her to join his adjutant helps for its remove.

2.
Inflammation.

The Second enemy we meet with is Inflammation: and this oftentimes is occasioned by Pain, and sometimes by the Unadvisedness, Neglect and Ignorance of the Chirurgion, when by too strict Ligatures he maketh a great attraction of Pain, creating an interception of Spirits, and an extinction of native Heat, purchasing hereby a fair way for a Gangrene and *Sphacelus*. Inflammation also is much to be feared in Wounds of the Nerves, Cartilages, and the like; or where but a small Flux of blood does follow the Wound. In which cases the Chirurgion is to breath a Vein, and to take away a plentiful quantity of Blood: for hereby he doth repress the Heat, and extinguish the Flame. If Cacochymy offend, correct and amend this by convenient Purgings, and lenifying Medicines, a good order of Diet, and such as may temper the Blood, ordering your Patient to shun all manner of Perturbations, which may create or stir up any Passions within him. If Inflammation happen by the puncture of a Nerve, or an incision thereof, wholly divide it; for it is better that Part should lose its motion, then that the whole Body should be robbed of its life, as well as of its sense and motion.

3.
Hæmorrhage.

I have been very plentiful in the Third already, and shall therefore remit you thither for this. Save onely by the way, when you come to Wounds of the Veins and Arteries, I shall there enlarge somewhat more thereon.

4.
Fainting.

As touching *Syncope* or *Lipothymia*, *Galen*, 12. *Meth. cap. 5.* does thus define it; that it is a principal Lapse of all the Spirits, happening by some hurt of the Heart, or injury done to it, when it is quiet in its procreation and distri-

distribution of its vitall Spirits. For then, as *Gordonius* doth expresse it, both sense and motion are taken from the whole Body, the Pulse becomes flat and dull, and Death appears in the face. And in these cases the Patients are seen to fall down without either sense or motion. This *Syncope* which does most commonly intervene in Wounds is for the most part from an Hæmorrhagiall cause, the which does make this dissipation of Spirits; or Fear, the which does make a speedy revocation of the Spirits to the Heart, whence followeth that every Part is forced to leave work, whilst this Disturbance is thus in action. A *Syncope* does oftentimes happen, as *Galen* does observe, from a venenate and putrid Vapour passing to the Heart through the Arteries, and to the Brain by its Nerves. And hence by most Authours are granted these three causes of *Syncope*. The first is made by the dissipation of the Spirits and native Heat, as in a large Hæmorrhagy: then by oppression or obstruction of these Spirits, as in Fear; for thus the Spirits are called back from the Circumference to the Center: and thirdly by Corruption, as in Cacochymick bodies, and venenate Wounds. The first of these are cured, if convenient Medicines be speedily applied and administered; as by sprinkling cold water on the face, laying him on his back, and stopping his Flux. The second by good Cordials, by cherishing and reviving his Spirits, by clapping sweet Smells to his nostrills, frictions of his Temples. But if a venenate Quality does occasion this, cure this by Mithridate, Venice Treacle, Actuall Cauteries, application of live Pigeons cut in the middle, Cupping-glasses, for derivation and interception of this Matter which is to be fetched out.

Neither is *Delirium* in Wounds less dangerous, which is a perillous Affect arising from some principall or noble Part, as the Nerves, Brain, Heart, *Diaphragma*, and the like, these, or any of these, being wounded. For this *Delirium* is nothing else but a deprivation of Motion, and

5.
Delirium.

Of Wounds in General.

an alienation of Sense, contained in the wounded Brain by essence or consent. Hence is it, that we so oft see in such as are bit by a mad Dog, that venomous Vapours do ascend upwards into their Heads, and fill the porosities of the Brains, which makes them so frantick and idle. It does arise from a vehement Pain and Inflammation; and therefore such Medicines as may cure Pain and Inflammation are very proper here. If it ariseth from Poyson, Alexipharmicks are the best engines to remove it. For derivation and interception of the matter which doth excite this *Delirium*, alterant and evacuating Clysters are here proper. Phlebotomy, Cupping-glasses, Actuall and Potentiall Cauteries are here most requisite. Setons and Fontinells are fair Orifices for letting out its venome. Cordi-alls, Emulsions and good Decoctions may defend it from the Heart. Hordeaceous and Papaverall Decoctions may banish it, by procuring Rest. And as it is a deprivation of the principall faculty of Motion, so are we to take care of it.

6.
Fever.

But because this more properly does belong to a Physician to examine and advise about, I shall briefly shut up this Symptome, onely acquainting you, that *Avicen, sen. 1.* does call that a Fever, which is an extraneous, adventitious, accensive heat in our Heart, by which the Veins and Arteries therewith sharing, it's carried through the circuit of our whole Body, and hurteth its actions. Neither is there any Fever allowed where the Heart is not affected, either primarily, or secondarily, being a Disease in Intempercity.

But to come to that which more properly does relate to large Wounds: and here, as *Hippocrates* offereth, untill a good Digestion be procured, both Fever, Pain and Inflammation do attend the Part: for whilst the Matter is making, the Heat does increase. Sometimes a Fever does arise from the Bite of a venomous creature; and therefore as it does carry this poysonous quality to the Heart, there
endea-

endeavouring to infect its Spirits, it very readily runs into a Fever and Inflammation. Now where this happens, cool the body by Phlebotomy : if ill Humours do joyn in the combate, dispatch these by convenient Catharticks. And in respect of the Poyson, you must use Alexipharmicks: for the Pain and Inflammation, prepare Anodynes; shunning all things which may procure a vehement motion, disturbance and perturbations of the mind; and use your greatest industry to bring every part to its due order, temper and habit.

Crudity also is a great enemy to the healing of Wounds; for it does afford no laudable Matter, without which expect no good new Flesh. And this by many Authours is allowed to happen by these six means : by a continuall Flux of blood, where no good Digestion is; by an Instrument contusing the Part, as happens in Gunshot-wounds; by the nature of the Part, such as deep Wounds in the Joynts; by coldness of the Air; by applying of unfit Medicines; and lastly, by too strict Ligature. As for the first, this you have already shown. The second is to be digested as contused Wounds. Astringent Medicines are to be applied to the Articulations, to preserve their Temper. The Air is to be corrected; the Part to be furnished with convenient Medicines; and the strict Ligature to be relaxed. And thus may you cure these six Causes of Crudity. The other two remaining Symptoms I shall speak of a little more largely, they being of great consequence.

7.
Crudity.

Six things
causing Cru-
dity.

C H A P. X.

Of Palsey.

A Palsey by the generall Consent of Authours is allowed to be a Resolution or Relaxation of the Nervous parts, with Deprivation both of Sense and Motion, on either side, or both sides of the Body, or in some part thereof. And this most properly is called a Palsey. Now the Nervous bodies are resolved, in that the animall Spirits do not act in them, neither are they filled or enlightned with vigour and briskness. The causes whereof are referred to the Obstruction of the passages, the which does hinder their Transpiration. In a Palsey, Motion, or Sense, onely, or both may be hurt together. And this may be acted either by Completion, Compression, or Solution of Continuity. For either their Ductures are filled up with some extraordinary Matter impacted in them, or compressed by extravasated Bloud or some Tumour, or Solution of Continuity made by some Wound or Concussion: and every of these may imprint their severall reasons and causes for a Palsey. And as our Countryman Dr. *Willis* does observe, as often as an universall Palsey or *Hemiplexia* does succeed a Lethargy, a *Caros*, or Apoplexy, it's very easy to conceive that this change of the Disease does happen from a *Metastasis* or Transposition of the morbidick matter. And if it may be enquired why that Sense and Motion are not alwaies equally inhibited in a Palsey, either of these is perfected in their proper Nerves and Fibres, and either Faculty is as the aversion of each other. Just as the Light casteth its beams through a Glas, when the Wind is excluded: so oftentimes Motion is abolished, the Sense remaining safe and sound. For Sense is as a Passion, a sensible

fible impression, the which by the continuity of the Nervous process is carried from the Organ to the common Sensory; without which the faculty of the Spirits is propagated by course and strength. Now Motion is a laborious and difficult action, to the which is required the expansion or explosion of Spirits, not onely in the motionall Organs, but chiefly in the Parts where the beginning of Motion and its first affection does draw its Origination. For from hence floweth its whole conduct of its explosive endeavours, the which it acteth through all its Nervous parts. In the Spinall marrow an Interception of the Spirits, or Cohibition thereof, making a Palsy, very oft doth happen, by reason of Compression, or Solution of Continuity. The extravasated Bloud, or Matter passing forth from the disrupted Abscess, does very oft shut up and obscure the passages of the Spirits. Hence Wounds of the Head, Concussions or Incisions do not onely frequently pervert or lacerate the Medullary tracts, but also by their coldness do constipate and bind up their spirituell passages.

The next thing we propose is, whether this Disease be accidentall, or habituall. The first may be said to come from an evident cause, as being procured by Wounds, Incisions, Concussions, Excess of cold or heat: besides which it hath no other then a Compression and Solution of Continuity. An habituall Palsy hath its dependance from a procatarctick cause, the which is an extraneous Matter, and as it were vitriolized, suffused into the Organs of Sense and Motion, profligating the Spirits by contaction. A Palsy does much differ from a Convulsion, in that in the first, Resolution and Relaxation is its proper quality; in the latter, Contention and Contraction.

We come now to the Causes of this Palsy, which are generally allowed to be both inward and outward. The inward obstructing the Ventricles of the Brain, so as the animall Spirit, which should be conveyed to the Nerves of

The difference between a Palsy and a Convulsion. Causes of a Palsy.

Of Wounds in General.

Sense and Motion, is wholly abolished. The externall Causes being Wounds, Concussions, Percussions, Incisions, Compressions, or Constrictions, or violent Colds occluding the Spirits. From what Humour a Palsey may be said to proceed, is hard to tell. For Melancholy drying the Nerves cannot be the Humour. Choler, having allowed it a drying quality also, and having an acrimony joyned to it, may rather be allowed to create Convulsion, by contracting and convelling the Nerves. And therefore it must either proceed from the Bloud, or Phlegm. It very rarely happens from Bloud alone, unless by accident. It's therefore granted by a generall consent, that it is bred from thick Phlegm, bordering upon the Nerves. But I rather presume that it happens from thin Phlegm, which flows from the Brain, and therein does create an Obstruction through its whole substance, making it more soft, out of which softness there follows an explosion of the Nerves. A substance very contrary to its naturall Construction, the which does wholly abolish the motion of the Nerves where it is inserted. Thus if the whole spinall Marrow be affected, there does succeed a Resolution of the whole from the Head; if onely one part, that part onely bears the loss. Thus have we given a brief discourse of the Palsey, and its inward and outward causes: let us now come more closely to that which chiefly does belong to our present discourse.

When therefore a Nerve is wounded or amputated, there must necessarily follow a Palsey upon the part, because both Sense and Motion in the action are lost and banished; and being thus divided, it's impossible to fetch them again: for being once cut, they do gather towards their Originalls. Therefore when any Nerve is either incised, cut or punctured, Pain being hereupon a very ready attendant, Anodynes are here most proper, defending the Wound from cold and all sharp things, and use comfortable and strengthening Medicines. But of these more afterwards.

Galen

Of Wounds in General.

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Galen does give all good Chirurgeons this Caution, that he ought to understand the primary Affect hereof and its place, and from whence this mischief ariseth, and its disposition. And he who is ignorant of these, may not be allowed skilfull enough to cure those Parts whose Sense and Motion are vitiated. The first we do fetch from Anatomy, which is an excellent Schoolmaster, the which perfectly learneth us how to know the Nerves which are sprinkled about the Face, sent thither from the Brain. If some of these with the whole Body be resolved, it cannot in reason be allowed, that this disposition of Resolution should consist in the Brain it self, whereas the parts belonging to the Face do remain unhurt and safe. If all the parts of the Head being sound, either of its sides be corrupted with a *Paralysis*, the cause is in one of the sides of the spinall Marrow. If the Arms be onely paralytick, the cause is in the fifth, sixth, or seventh *Vertebra* of the Neck. If the Legs, draw the cause from the *Os Sacrum*, and its *Vertebra*.

To presage and judge of a Palsy, and every occasion which may cause and produce it, and of every affect of the Nerves, as touching their sicknesses or cures, this most properly does belong to the Prognostick part. And thus according to *Hipp.* we may presage that a Palsy is hard to cure in old men, because their native Heat is almost extinguished. And *Galen* does affirm, if Fever and Trembling have supervened a Palsy, it's a good sign: for Fevers do partly dissolve the superfluous Humours which are in Resolution of the Nerves, and do partly digest their coldness. A Solution of the Nerves, as *Galen* does worthily declare, is never perfectly cured. A Palsy proceeding from an inward cause is not easily found out, or easily cured. A Palsy following an Apoplexy is scarce curable, the cause being vehement, and the Parts weak. Where Sense and Motion do appear to be both lost, this does prove very dangerous. If the Paralysed

Signs of a
Palsy, and
Causes.

Presages.

member do change its colour, expect no Cure, for the native Heat is extinguished, and the animal Spirits abolished. If it happen from an evident cause, as by a Blow, a Wound, or the like, if it do not quickly amend, or give way to Medicines, it does prove for the most part incurable. Such as are once cured of a Palsey arising from an evident cause, are not readily troubled therewith a second time. And to conclude the Presages, if Palseys happen in Aged people, or in Cacochymick or Scorbutick bodies, and in Intemperencies, these are very hard to remove.

Cure.

And since, as I have already proposed, we see that a Palsey does consist of manifold Types and divers Causes, its Cure is also to be performed after a various manner, instituting a proper method to every species of the Disease. And as there are generally allowed three kinds or sorts hereof, so should there be proposed three kinds of Cure. First, for Resolution, this being the main Agent, this is to be cured. Secondly, if it happen by Wound, Incision, excessive Cold, or a Fall from a high place, this also must have allowed it its way of Cure. Thirdly, as it is a procatarrick and primary Disease of it self. I must leave the first and third, and onely take the second for our present discourse.

And whereas we here do grant, that this Palsey does happen by some Accident, produced by some vehement Hurt, there will not be required many Intentions for this, save onely the Conformity of the hurt Part to be made into its pristine frame. And that no Affect, as Bloud or affluent Humours, may bring detriment to the affected Part, Phlebotomy in this case is very speedily to be made use of, if nothing hinders it; and the Body is to be kept open by lenifying Purgings, and a good order of Diet, keeping your Patient in a moderate Sweat in his bed, so as all Superfluities may be exhaled and called back from the hurt Part. And for this Use *Pulvis ad Casum* is granted a good Medicine, to be given in White wine, to the

the quantity of a Drachm or a Drachm and a half. A common Decoction of *Guaiacum* is also much commended here, for this does both digest and discuss the Matter and Cause. To this may be added many other Cephalick herbs and flowers, to be bruised, and boiled in Beer, for the Patient to drink either at meals, or morning and evening. And these are to have in them such faculties as may strengthen the Nerves. Such as are Cowslip-flowers, Betony-flowers, Rosemary-flowers, *Stæchades*, Calamint, Mint, Lavender-flowers, Marjoram, Germander, Ground-pine, Elecampane, *Calamus Aromaticus*, Cinnamon, Hyssop, Thyme, Cloves, Nutmegs. With these or the like may be made excellent good Mead, by adding Honey thereto. His Diet should be light of digestion; as, Rabbits, Chickens, Pheasants, Partridge, Black-birds, and the like, Electuaries, and Conserves of Rosemary-flowers, Betony, Sage, and the like. To which may be added some Cordiall species made up with Syrup of Cowslips, of which the Patient may take several times in a day.

Pills to help to evacuate and discharge these Humours ^{Pills.} may be such as these: *R. Pil. fætid. ʒijß. Agaric. Troch. ʒj. Troch. Albandul. gr. ij. Castor. gr. iij. cum Mel. scillit. q. s. fiant Pil. n.º. 10. deaurenti. r, quarum sumat ij. omni mane.* Or this Decoction; *R. Rasur. Guaiac. ʒvj. Sarsaparil. Decoction. Sassafr. an. ʒiiij. Santal. omn. Rasur. Ebor. Corn. C. an. ʒß. infunde, & coque in aqu. fontan. ʒxvj. ad medietatem, addendo sub finem Rad. Calam. aromatic. Galang. an. ʒß. Irid. Florentin. ʒj. Cardamom. ʒvj. Sem. Anis. Coriand. Fænicul. an. ʒß. Daſtyl. n.º. 10. hujus sumat pro potu ordinario.* In this case also *Elixar Proprietatis* taken to the quantity of ten or twelve drops, in a glass of good old Canary, is very good. Coffee is also allowed very good to dry up this moisture: or this Digestive; *R. Oxytel. simpl. Syr. de Digestive. Stæchad. an. ʒj. Syr. de Betonic. ʒvj. Aqu. Salv. Betonic. an. ʒjv. Spir. vitriol. gutt. 6. cum Syrup. Cinnamom. q. s. fiat Juscapium, sumat mane.* Then order these Pills: *R. Pil. Pills. Coch.*

Of Wounds in General.

Electuary.

Pills.

A medicate
Wine.

Coch. ʒij. Sine quibus ʒj. Pulv. Nuc. Moschat. gr. ʒ. Ol. Succin. gutt. iij. Diagrid. gr. ij. cum Oxymel. q. s. fiat Pil. lule. An Electuary to be taken in the morning may be this; *Rc Mithridat. Theriac. Andromach. an. ʒiiij. Castor. elect. ʒʒ. Spir. vitriol. gutt. 6. Spir. Pæon. ʒj. cum Syr. Stæchad. fiat mixtura.* Pills for the same: *Rc Pil. Fætîd. ʒij. Coch. ʒj. Pulv. nuc. moschat. gr. iiij. Ol. nuc. moschat. gr. ij. Cambog. gr. ij. cum aqu. Betonic. fiat Pil.* This following Medicate Wine is much praised in the Palsey: *Rc Herb. Chamæder. Chamæpit. an. m. j. Fl. Primul. ver. m. ʒ. Rorismarin. Salv. Fl. Anth. an. pug. ij. Rad. Imperator. Angelic. Irid. Florentin. Ellebor. nigr. Sem. Cartham. an. ʒiiij. Agaric. alb. ʒiiij. Cardomom. Cubeb. an. ʒij. Sal. Tartar. ʒʒʒ. concis. & crasse contus. insuantur sacculo cum Vini albi t̄vj. fiat Vinum medicatum, hujus sumat ʒiiij. quibus adde Spir. Sal. Armoniac. gutt. viij.*

As touching the Cure of a Resolution of the Nerves happening by a Wound, or any other outward cause, the whole Body being well ordered, we come next to Topicks. And as touching the locall parts of application, here are we first to examine well the affected Part, the which is properly collected and known by the Hurt affecting the Part, and partly by the Members resolved. And if in this case any Part be out of order, you are to reduce it into its pristine place by your care and skill. If Tumour, Contusion or Wound be here excited, these are to be dressed, corrected and amended, by Balsams, Liniments, Fomentations, Oyls, Cataplasms, Emplasters, or the like; beginning and proceeding in your Operation with mildness, maintaining and preserving the moderate Heat. Such Medicines as these following are very excellent in the Palsey, observing a due order in their application. And here Oyls for this use should be hot and drying, and by their thin parts digesting.

In applying of Unguents we are to begin with weak Medicines: of which kind may be allowed these. *Rc Ol. Cham.*

Of Wounds in General.

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Cham. ʒij. *Lilior. alb.* ʒjʒ. *Laurin.* ʒvj. *Pingued. Anat. Gal-* Unguent.
lin. an. ʒij. make it into an Unguent. *Unguentum Mar-*
triatum and *Aregon* will make it stronger, if it be desired.

Or for the same take this : *R. Ol. Petrol. Hyperic. cum* Another.
gummi, an. ʒj. *Pulv. Euphorb. Castor. an.* ʒj. *Costin.* ʒjʒ.
Martiat. Aregon, an. ʒʒ. *sine addendo Aqu. vit.* ʒj. *fiat Un-*
guentum. Or this : *R. Ol. Vulpin. Lumbricor. Chamomel.* Another.

Rut. an. ʒʒ. *Castor. Spic. an.* ʒij. *Ol. Succin. Salv. an.* ʒj. *misce.* Another.
Leonellus Faventinus does much glory in this his Unguent:

R. Ol. Laurin. Terebinth. an. ʒjʒ. *Ol. Nardin. Petrol. an.* ʒʒ. Another.
Vini Malvat. ʒij. *Aqu. vit.* ʒj. *Pyreth. Piper. Sinap. granor.*

Juniper. gum. Heder. Anacardin. Labdan. an. ʒvj. *terantur*
& misceantur omnia, cum oleis & vino coquantur ad vini
consumption. in duplo vase, facta forti expressione, adde Gal-
ban. Bdell. Euphorb. Myrrh. Castor. Adip. Ursin. Anat. an.
ʒij. fiat Linimentum, sine addendo parum cera.

All naturall Baths are good here ; or artificiall Fomen-
tations : of which sort take this as an Example ; *R. Rad.* Fomentati-
Alth. m. ij. *Sem. Lin. Fœnugræc. an. m.* ij. *Salv. Lavendul.* on.

Majoran. Chamæpit. Iva Arthritic. an. m. jʒ. *Herb. Betonic.*

Absinth. Rosar. rub. Hyperic. Stæchad. an. m. jʒ. *Aneth.*

Menth. an. m. j. *Chamomel. Melilot. Rut. an. m.* j. *coquan-*

tur omnia in aqua & vino sicut mixt. & fiat Fomentum :

with which let the Paralysed parts be fomented by dip-

ping Stupes therein, and so applying them warm to the

affected Part. After which application you may embroc-

ate the Parts with this following Mixture : *R. Summitat.* Mixture.

Rorismar. Salv. Lavendul. Rut. Chamæpit. Majoran. an. m. j.

coquantur in. f. q. vini albi, ad hujus colaturæ ʒiiij. adde Spir.

Vini rectificat. ʒiiij. Spirit. Juniper. ʒj. Aqu. Salv. Rorismar.

Lavendul. an. ʒj. *Ol. Salv. Succin. an.* ʒj. *Styrac. liquid. ʒj.*

misce.

I conclude this Chapter with this History of a young History.

Gentleman, who being of a sanguine Constitution, after

eating a large Supper, did drink very plentifully of Wine.

As he sat in his chair, he was suddenly surprized with a

Stupi-

Stupidity in his Right hand, so that the Glove which did cover his hand did involuntarily fall off. He endeavouring to arise thence and walk, did perceive a Resolution in his Thigh and Leg on the same side. A small while after, falling into a Drowziness of mind, and a Sleepiness, without an Apoplexy, being asked severall questions, he very aptly answered them, yet slowly, and as it were disturbed. A worthy Physician being sent for, Phlebotomy, Purging and Vomiting being in their orders used, and Cupping-glasses, Frictions, Scarifications and Liniments being with care administred, yet the Palsy did creep so fast on that side, that the Member had almost wholly lost its motion: with which he lost the sight of his Eye on that side. And all proper Medicines taking no place, the animall Faculties daily decayed; so that about the seventh or eighth day falling into a *Delirium*, and afterwards into a Convulsion, he was within a short while forced to shut up his last minute, his Spirits being dissolved. The dead Corps being opened, the anteriour Cavity of the Brain was seen filled partly with an Ichorous, partly with a concrete and grumous Bloud, accompanied with plenty of *Serum*. Hence (as Dr. *Willis* does conjecture, who was the Authour of this History) in respect of this *Illuvies* compressing one Striated body, and constringing its pores and passages, it hindred the afflux of Spirits passing into the Nervous appendix of that side; and hereby a Resolution being excited in the respective Members, and also a Compression, by reason of the *Thalamus Opticus* to which the Striated body is inserted, the sight of the Eye on this side was wholly divided.

C H A P. XI.

Of Convulsion.

AMongst all the preternaturall Affects which are consistent in Solution of Continuity, and which do bring danger of Inflammations, Watchings, *Delirium*, and Convulsion, Wounds of the Nerves and Nervous parts are most dangerous: for these seldome do goe without their Symptoms. This Convulsion in Wounds is a direfull Symptome, for it is an involuntary Contraction of the Parts towards their Originall, prostrating their Faculties by Pain, abolishing all voluntary Motion, without which Life is but a troublesome thing. And that it is a morbisick cause may from hence be collected, in that it does deprive the Parts of their proper Motion. For as when Deglutition is hindred, there does follow an Inanition in all parts, so consequently a Consumption. Even thus while the Urine or Excrements are detained, Diseases are made in the Cavities: and also in Intemperieity, Magnitude, and Solution of Continuity.

The Nature therefore of a Convulsion is diligently and carefully to be minded and considered, and its Causes, that we may better find out the way of its thus happening in Wounds. We allow therefore that a Spasm is a depraved Motion happening in the voluntary moving Faculty, and is a nervous Distempereity, by which contraction of the Muscles they are altogether made incapable of extention; and it is a principall affection of the Nerves, which do obey a voluntary command. And that this description may the better be understood, we may much enlarge in our knowledge hereof by Anatomy.

What a Convulsion is.

tions being procured and procured by the animall Faculty, which are exercised and performed by the Muscles and their Tendons, as by their proper Instruments; whilst these Muscles do contract their Beginning and *Radix* towards their End, they also do draw with them their annexed Members, as Nerves, Tendons, and Ligaments. For no proper animall Motion can be made in any living creature without Muscles, and these do take their moving Faculty from the Brain. For although the Brain it self be not fibrous, the body of its Nerves is fibrous: and these are the messengers which do convey this Spirit into the Muscles, and through them, which do give them both their sense and motion. Now therefore, when by any preternaturall affect the Nerves or Tendons are pricked, inflamed, or otherwise hurt, they do recede from their pristine vigour, and do prove incapable Instruments: and hence follows Convulsion, or that contractive motion we call a Spasm. *Gal. 6. Aphor. 39.* writes, a Convulsion to be a hurting of the voluntary Function, because herein the moving quality is as it were tied up from acting in its proper sphere; and thus Motion is hindered, the Instrument thereof not being wanting, but hindered in its action by being girt up by the Distemperity of the Instrument. And therefore Spasm or Convulsion by *Johan. Andr. à Cruce* is described as a Symptome of a Disease, not of a Faculty.

The differences of Convulsion.

There are allowed generally to be three species of a Spasm. If the Affect do arise in the Anterior part, this Convulsion by the *Greeks* is called *Emprosthotonos*: *Ἐμπροσθεν* is all one with *ante* in *Latine*. By some it is called *Convulsio domesticalis*. This is made, when not onely the Neck but the other Parts of the body are drawn forwards. If it possess the Back-part, it is called *Opisthotonos*, from the *Greek* word *ὀπίσθεν*, which is the same to *retro* in *Latine*. And this happens when the Muscles which do inflect the Body are hurt backwards. By some this is called

Con-

Convulsio Scapuloſa. The third is *Tetanos*, or *Totum extenſum*: and this Convulſion is made, when all the fore and back Parts of the body are equally contracted, keeping them as it were at a ſtay, and making them very ſtiff. *Ceſus* does declare, that there is no Diſeaſe more outrageous, cruell, and acute, then that which by a *Rigor* or Stiffneſs of the Nerves and Sinews does annex the Head to the *Scapula's*, the Chin to the Breast, and maketh the Neck right and immovable. In which Diſcourſe he hath both briefly and elegantly ſet down the three differences of Spasm, which we have been diſcourſing of. He hath alſo a fourth Species there of a Spasm, which he calls *Spasmus Cynicus*; as when the Mouth is pulled awry, or one or both Hands be contracted.

All the chief cauſes which do produce theſe Convulſions are by him reckoned as three: (*viz.*) Plethory, Inanition, and Sympathy. Of theſe in their Orders.

I begin with Plethory, ſo called from its copiouſneſs Plethory. and plenitude of divers Humidities, the which do replete and poſſeſs the Instruments of voluntary Motion; as the Body being thick and fleſhy, the Veſſels full, the Pulſe ſtrong, the Age ripe, the Complexion ſanguine, and the like. Thus by Plethory or Plenitude Convulſion may be ſaid to be made, when the Nervous bodies and their Fibres are nourished with thick and glutinous Matter, and are therewith alſo repleted: by which Repletion they are diſtended; and hence, as they fill out in bulk, they do ſhorten in their length: hence do they become contracted and abbreviated, and ſo are they run into Convulſion.

The Second is Inanition: and this is made for want of Inanition. naturall Moiſture; the Nerves being hereof deſtitute, do ſoon grow dry and ſhort. For they muſt needs grow ſhorter, as does a Cord, when once being wet, and dried again, it ſhrinks and ſhrivells up: ſo alſo do the Nerves being corrugated. The Diſeaſe therefore which does fol-

low a Convulsion is a perverse figure of the Muscles, in which they are made shorter by Inapition as well as Repletion. Thus every humourall Matter which may be said to fill the Fibres, may also be allowed to create a Convulsion. And this may be confirmed of Inanition, that every thing which hath power to make this, hath also strength enough in it to frame a Spasm. And hence sometimes immoderate Evacuations or Vomiting, which are allowed to dry very much, do so oftentimes bid fair to a Convulsion.

Sympathy
or Consent.

A Third Cause is called Sympathy : and this is said to happen by malign Vapours offending the Originations of the Nerves, as it is oftentimes seen in poysoned Wounds. Another is said to be made by Pain attracting the Nerves from their Originations. A third which may offer it self is from immoderate Cold, causing in them a great Stiffness.

What remains in the Causes of Convulsion is, to shew how this may be made in Wounds. And here may we see how this may be made out of Plethory, the Nerves being filled with purulent Matter, or other Excrements, generated either in the wounded Part, or sent thither from other Parts, and so sucked up by the Nerves ; as it oft happens when a Nerve is half divided or cut : or by reason of Inflammation, the Part being filled with a large Flux of blood, and so distending the Nervous parts ; especially if this Disaffection be communicated to the Originall of them, or the Nerve it self be primarily offended. And hereby the Muscles become shorter, and so forced to contract towards their Originall, neither by Heat alone, but also by immoderate Cold in Wounds of the Nerves and Nervous parts, hereby suffering Convulsion, this prohibiting the Excretion of Excrements, and shutting up and condensing the Porous bodies. Out of Inanition may also be made Convulsion, and this also by Inflammation : and this most generally happens in Wounds of the
Nervous

Nervous parts. For thus the inflamed Part is convelled, and answers directly to Convulsion, and hence it communicates it self to some principall Part; the which being there received, does communicate of its Distempereity through the whole Body. Convulsion does oftentimes happen in Wounds of the Nervous parts, in respect of exsolution of the wounded Part, which does send forth its ill habits to the Brain, the Origination of them; by which the Brain it self is vellicated and irritated: and being thus concussed, that it may clear it self from the mischief this portends it, and give a *quietus* to this unhappy companion, there must necessarily follow Convulsion upon this combat in the subject Parts. But such motions as these do prove generally universall, even as the spirituous quality is carried to the Brain through the affected Nerve, being either prickt, cut, or hurt, containing a putredness in it. So also of Cold may follow Spasm, being a great enemy to the Nerves.

The Signs of a Convulsion are readily to be discerned, Signs of Convulsions. for the Part is drawn towards its Origination, and there it does create such a Stiffness, that it is not easily to be extended. *Galen, 1. Proret. cap. 2. Tract. 2c.* saith that it is an Affect full of Pain. The greater is the Pain when made by Repletion: and this Affect hereby is soon procured, when it is communicated to a principall Part. This you may collect from these Signs: in that the Throat is narrowed, the Teeth constringed, the Mouth is not to be opened, the Lips contracted, the Neck and Back pained, the Eyes and whole Face perverted; and after these the Patient does breath with difficulty, and his Breath being intercepted, he parts speedily from his Life. If by reason of a Wound *Tetanos* or Distention does happen, the Patient's Mandibles are conglutinated, he cannot open his Mouth, his Eyes are filled with tears and contracted, his posteriour Parts are convelled, and his Body is bent backwards. Hence do arise vehement Pains, and some-

times the Patient cannot either contract his Thighs, or extend his Hands. In *Emprosthotonos* the Body bendeth altogether forwards, and the Parts are contrarily disposed to the former. And this is to be understood of those Parts which could bend either way. The Leg cannot be bent forwards, or the Thigh backwards.

Prefages.

Hippocrates saith that Convulsion happening upon a Wound is mortall. A Spasm also happening upon a large Flux is ill. *Aphorism.* 3. Such as are taken with a *Tetanos* do commonly die within four daies; and if they escape these, they are past the worst of danger. *Aph.* 6. Such as die of a Convulsion do continue their Heat a long while, they dying suffocated, the Muscles of Respiration being convelled, and those of the Neck distended. Such as have Convulsions, a Fever happening, are freed hereby from their Convulsions. Every Convulsion may be said to come from Repletion, because it is cured by Evacuation. A Convulsion bred out of Inanition is both sharp and cruell. If it do communicate its hurt to the Muscles moving the *Thorax*, it does threaten Death. That Convulsion is much to be dreaded which closeth the Lips, and lets fall the Mandible.

Cure of a
Convulsion
caused by
Plenitude.

As other Passions, Accidents, or Symptoms, which are wont to arise from a copiousness or plenitude of Humours, are to be cured by opportune Evacuations; thus also is a humid Convulsion to be treated, by ordering a good Diet, and application of convenient Topicks, the which should not onely contain in them a drying and discussing faculty, but also eradicate and extirpate the whole Affect. The wounded Patient is therefore to be placed in a Room where the Air is hot and dry, or so made by Art. Frictions of the extreme Parts are beneficiall. Let his Diet be thin, for Inanition in this case is an excellent Remedy, for it dries the Body. Let his Bread be well baked, and his Diet be of a light Digestion. Breath a Vein where bloud is much abounding, or Inflammation offers
it

it self; for this is a ready remedy to prevent Convulsion. Both *Galen* and *Celsus* do declare, that in a Cynick Convulsion to breath a Vein is very proper. And this is to be ordered and prescribed according to the strength and Constitution of the Patient. Purge frequently with *Hier. picr. Pil. Coch. Pil. Aggregativ. De Agaric. Extr. Rud. cum Merc. dulci, &c.*

Outward Medicines for the wounded Part may be thus ordered. If the whole Nerve be incised, there is scarce any Motion left perceivable. If the head of the Muscle be pricked, occasioning Convulsion, and cannot be remitted by any force of Medicine, by cutting the whole Muscles transversely you cure the Convulsion. But you must hereby expect to lose part of its Motion. The Ancients concluded this Operation with an actuall Caustery, after which was applied this Medicine; *R. Ol. Hyperic. Mastich. an. ʒij. Terebinth. Oleum. Venet. Resin. Pin. an. ʒiij. Sulphur. viv. ʒj. Croc. ʒ. misce, parum bulliant*: over which to apply this Cataplasm; *R. Pulv. Catapl. Fl. Cham. Melilot. Fol. Betonic. Laur. Bacc. an. ʒj. Farin. Hord. Fabar. an. ʒij. Ol. Lilior. albor. Sem. Lin. an. ʒij. fiat Cataplasma*: or this; *R. Spir. Lavendul. ʒij. Spir. vini ʒjv. Ol. Succin. ʒj. Ol. Hyperic. Magistral. ʒij. Terebinth. Spic. an. ʒij. misce*; and with this anoint the convell'd Parts: or this; *R. Axung. Human. Anser. Ursin. Ol. Vulpin. an. ʒj. Unguent. Diath. Martiat. Aregon. an. ʒj. Ol. Hyperic. cum gummi ʒij. Ol. Lilior. Castor. an. ʒij. misce, fiat Linimentum*. Another for the same use may be this; *R. Ol. Spic. Terebinth. Petrol. an. ʒj. Axung. Human. ʒij. Martiat. ʒij. Ol. Salv. Nuc. Moschat. an. ʒj. Succin. ʒ. misce*. Fomentations here also may be with profit used, such as are made of *Scordium*, Sage, Wormwood, Lavender, Rue, Chamomill, Dill, Marjoram, Rosemary-flowers, Red roses, Betony, Cowslips, Tansey, St. Johns-wort, Scabious, and the like, being boiled in water and milk. After the application of which, be sure to keep the Parts very warm.

To conclude this; take this History of a corpulent man, An History.

man, over-filled with wine and beer, so that by a general opinion he was reputed intoxicated. Being in this condition carried in a Coach to his house, he fell down upon his back, and was left so sleeping in the Coach untill he got to his own house. But coming thither, being much stirred, and asked severall questions, he gave no answer to any; and being carried mute into his house, he still remained in his sleeping posture, and within a short while died of a Convulsion, before any Physician could arrive at him. It was generally conjectured, the Wine he drank hastned his death by suffocation, being thus carried so strangely in the Coach lying all the while on his back in a sleepey condition.

Cure of a
Convulsion
arising from
Inanition.

We come to the Second kind, the which although it be accounted lethall, yet where any hopes of cure may offer, we are thus to begin with the convell'd Parts. The Patient's Diet therefore is to be of good Juices, as Broaths and Decoctions, to be made with Capons, Chickens, and Veal-broath, and the like, wherein may be boiled the Leaves of Mallows, Lettice, Purslane, Violets, Bugloss-flowers, and the like, and such things as may strengthen and confirm the Parts, and create a moist habit in them. Of these and the like may also be made Conserves, Juleps, Electuaries, and Decoctions, by adding Sugar and convenient Liquours and Syrups. Purging is very improper here. Lenifying Clysters are very convenient Medicines. Emollient Liniments and Baths are here mostly required;

An Unguent.

of which sort may be reckoned these. *R. Butyr. Mai. Axung. Porcin. an. ʒij. Ol. Lili. Violar. Amygdal. dulc.*

Another.

an. ʒij. Axung. Human. ʒj. misc. : or this; R. Axung. Porcin. Pomat. an. ʒj. Ol. Oliv. Lumbricor. an. ʒij. Ol. Violar. Cydonior. an. ʒij. Cer. q. s. fiat Unguent. or this;

Another.

R. Ol. Viol. Amygdal. dulc. Pingued. Gallin. Vitulin. an. ʒij. coquantur simul in decocto Malv. Alth. & Sem. Cydonior. colaturæ adde Cere q. s. pro Unguento. As for Fomentations, you may boil here Calves Feet or a Sheeps Head and Feet

in milk and water mixed together, and to these adde Mal-lows, Marsh-mallows, Violets, Linseed, Fengreek-seed, Chamomile-flowers, and Melilot-flowers : and with these and the like the convelled Parts are to be fomented.

Hercules Saxonie writes, that Convulsion made by Ina-^{History.} nition may be cured. He doth propose the case of a Reverend Generall of *Cassina* : a speedy Effusion of blood out of the Hæmorrhoidall veins caused not onely a *Syncope*, but also a Convulsion to seize on him, the which by Divine assistance he was perfectly cured of.

Now albeit *Hippocrates* saith, A Wound being received in the large Veins where much blood is spilt and scattered, oftentimes Convulsion and *Syncope* is seen to succeed, which is direfull, as he hath it *Aph. 3. lib. 5.* yet *Hollerius* writes, that the Patient does seldome die of this Disease. And hence *Dovinetus, lib. 1. cap. 3.* writes, that he saw a man fifty years old which fell into a Convulsion and *Syncope* occasioned by a great Effusion of blood, who by the benefit of Cupping-glasses and Bleeding was perfectly cured.

If Convulsion do arise by Consent or Sympathy, the^{Of curing a Convulsion happening by Sympathy or Consent.} cause hereof is speedily to be inquired into : the which if it prove procatarctick, this is to be removed ; if sharp and painfull, this is to be asswaged ; if it proceed from Cold causing a Numness in the Nervous parts, and making them stiffe, this is to be amended. Now if a malign Vapour do offend the Origination of the Nerves, in this case the Wound is to be dilated for discharging of the peccant and venomous Matter. Flatulencies also may create many species of a Spasm, not onely seizing the extreme Parts, but also forcing themselves into others : first taking the Head by advantage of surprize ; hence working into other Parts, and undermining them by the sense of Cold, throwing it self between the *Scapula's*, disturbing the Body in its entire Senses with an *Opisthotonos*, executing its vigorous influences of mischief in one side, firmly con-

tracting it, and girting it up from acting or performing any of its Functions. From whence may be collected, that its chief Cause is not an Humour, but some cold and thick Vapour, the which by some inclining advantage does dissipate the whole; whose chief Agent in this cause does lodge in the Head, as *Fernelius* doth observe, *lib. 5. cap. 3. Patholog.*

The Medicines most properly here to be applied ought to be of a liquid substance, and such as may penetrate into the bottome of the Wounds: and these ought both to dry, and digest, resolve, and attract this virulent Matter. And for this Use *Venice-Treacle*, *Mithridate*, *Myrrh* and *Aloes*, dissolved in *Treacle-water*, are very prevalent. *Elixar Proprietat.* its drops put into Sack is an excellent Medicine here. Now as touching Cold and Pain, I remit you to their proper places, where I have already enlarged. I conclude this with some remarkable Histori-
cal Observations.

History.

Platerus writes, in *Obs. suis, lib. 1. fol. 120.* of a young Maiden, who falling from her horse by hearing unexpectedly a Pistoll discharged, had hereupon a Resolution in her lower parts of her body, in that nature that she could not stir her hands or feet, neither had she any sense. Being carried in this condition to her Father's house, he viewed the Wound, which was almost in the middle of her Back, to which he applied himself; the which he conjectured was occasioned by her Fall. Upon examination of her upper parts, finding no harm or defect there, the lower parts remaining stupid, dull and resolved, the Chirurgeon immediately did apply hot Stupes to her feet, by which was suscitated somewhat of Heat. He being called in to advise, examined the whole occasion of this mischief, and inquired into its cause from the Patient. She replied, the hearing a Pistol shot off unawares by one riding by her in the road so affrighted her, that she fell from her horse; upon receiving of which Fall she felt a
grievous

grievous Pain in her Back : growing faint herewith, and coming to her self, she complained of her Back being wounded and resolved. Upon examining the Wound, which was on the right side of her Back, near the eighth and ninth Ribs, coming downwards obliquely towards the Spine, he found it exactly round : and whereas in its Circumference there appeared no sign of Contusion, suspecting it to have happened by the force of the Shot, he ordered her Cloaths to be examined, in which he also found a hole made by the Bullet ; upon which he fairly conjectured, that this Wound was made by this Shot, and that it had penetrated the Spinall marrow. Divers Chirurgeons being called into Consultation, they all did judge the same, and by a generall consent, a Probe being sent into the Wound, part of the *Vertebræ* was found to be lacerated. Ten daies being expired since the hurt, she grew worse, and troubled with Vomiting and a great Heat in the upper part of her Spine, with pain of her Head, and Spasm about her Neck. Medicines being applied to these with small success, at the twentieth day she departed the world. And because a great dispute did arise at her death, what might be the occasion thereof, whether the Fall or the Shot, upon Dissection, and by dilating of the Wound, some part of the Spine being removed, the leaden Bullet did shew it self lodged, the which had lacerated the Spinall marrow.

Another is of *Camerarius, de Observ. Johan. Hessii*, who Another. writes there of *Christopher Albertus*, Son to an Apothecary, a young man of about twenty years of age, that he grew very melancholick, and by using of a cold Diet, and such things as were hard of concoction, did fall into an Abdominall Suppression, accompanied as it were with Colick-pains, in which happened this Convulsion called *Opisthotonos*. Divers strong Medicines being prescribed him, he took them without any effect. Afterwards having severall Clysters administred to him, by them he

seemed to receive some relief; but in the interim, as oft as he covered the Stool to void his Excrements, this Paroxysm invaded him. And upon second thoughts, consultation being had why milder Medicines might not work better and more kindly, a more temperate Clyster was administred, made onely of Milk and Honey, adding to a pound of Milk four ounces of Honey: the which wrought very kindly, and caused the Fits somewhat to abate. But whenever the Paroxysm seized him, three or four men could scarce keep him in his bed: and these sometimes happened three or four times in a day. Considering these Symptoms, it was generally agreed, that this Disease was an *Opisthotonall* Convulsion, made by Coagulation in the *Vena Cava*, the which does abound oftentimes with thick and viscus Humours. His Drink for the Cure hereof was a Decoction of *Sarsaparilla* and *Sassafras*, and every fourth or fifth day he had administred a Decoction of Milk and Honey: by which method the Fits began to abate, and on the 28th day of his Distemper he fell into a breathing Sweat, after which the Spasm began to vanish. But after this a Tremor did possess his whole Body, but chiefly his Thighs; for which his whole Spine was anointed, and by these he speedily amended.

History
of Tetanos.

Another young Gallant of twenty years of age, being of a thin Body, and perplexed with this Disease, was thus cured. *Jason. cap. 21. de morb. Cerebr. ex Vesalio*, thus writes it. He spilt upon the Patients head almost twenty pitches of water, four men holding the Patient upright, so as the liquour might descend upon all his lower Parts. This being done, he ordered the Patient to be speedily put to bed: within an hour after which the Patient was anointed from the Neck to the lowermost Spondyl, with his Arms and Legs, with *Unguent. Aregon, Martiatum, Diath. Agripp. and Ol. Castor.* and some Chicken-broath prescribed for his Diet; and by this method he perfectly recovered. *Fabritius Hildanus* hath a very excellent Observation

vation of a Cynick Spasm, fol. 37. *Centur.* 5. to which I recommend you.

And thus have I given you a full account of the direfull Symptōms which do attend deep and large Wounds: we come next to Wounds themselves.

C H A P. XII.

Of a Compound Wound of the Flesh, or a Hollow Wound.

WE ought to deal with all Wounds so as they may answer expectation: and now coming to Cavernous Wounds, we may as readily account that a Hollow Wound, which hath not onely lost a part of its Flesh, but that also which happeneth by a simple Incision, without loss of Flesh, the Lips of which Wound, by reason of the greatness and large distance, cannot be aptly united in the bottome, whence there does remain a Cavity therein. And as for the Cure hereof, we are first to mind the Flux, for avoiding of Inflammation. And if occasion serve, and the time of the year does require it, we may breath a Vein, and prescribe cooling Syrups and Decoctions, and order Purgations, and such a thin Diet as may keep the Body in good temper. And because in such large and hollow Wounds there is generally seen some preternaturall Matter to lodge in their bottomes, the which the Part of it self is not capable to discharge; we here ought in the first place to use Digestives, hereby to digest the Matter, and to bring it into a laudable substance, that is, such a Matter as is both white, smooth, equall, and void

Of Wounds in General.

of all bad smell. And these are to be applied no longer, then while this laudable Matter is made; and all Excrements be removed, keeping and preserving the naturall Temper of the Parts. And herein Nature is very ready to assist in this Operation: for as the Part is fleshy, this is suddenly renewed, and restored by Bloud lodged in the Muscles, out of which is generated a new Flesh. With Digestives may also be admixed Deterfives: for as the first are proper in the beginning, so the latter are as requisite in the following part. Examples of which I shall set down thus.

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|-------------------------|--|
| Digestive. | <i>R̄ Unguent. Basilic. Aurei, Terebinth. Venet. lot. an. ʒj.</i> |
| Another. | <i>Vitell. Ovor. no. ij. Croc. ʒβ. misce. Or this: R̄ Bals. Peruvian. ʒj. Ol. Catellor. Hyperic. gummat. an. ʒj. Terebinth. Venet. ʒj. Vitel. Ov. no. j. Or this: R̄ Ol. Vitell. Ovor. ʒij. Terebinth. Venet. ʒiij. Myrt. ʒij. Resin. Pin. Colophon. an. ʒj. Thur. in pulv. ʒjβ. Sang. Dracon. ʒvj. Cer. parum, fiat Linimentum. Another for the same: R̄ Thur. Myrrh. an. ʒβ. Sang. Dracon. ʒj. Pic. Grec. & naval. an. ʒij. Pulv. Centaur. ʒj. Terebinth. Venet. Resin. Pin. an. ʒj. Sep. Vaccin. ʒj. Cer. ʒij. misce. Digestives and Deterfives together may be allowed these. R̄ Mel. ʒj. Terebinth. ʒjβ. Basilic. Aur. an. ʒβ. Ol. Hyperic. cum gum. ʒj. Vitel. Ov. no. j. Croc. ʒj. misce. Another: R̄ Succ. Apii ʒij. Mel. ʒjβ. Pulv. Veronic. Hyperic. an. ʒj. Farin. Fabar. ʒβ. Or this: R̄ Succ. Apii, Scord. Arnogloss. Rnt. an. ʒj. Mel. Rosar. ʒjv. coque ad Syrupum, huic adde Farin. Lupinor. Pulv. Aristoloch. rot. Angelic. an. ʒij. Aqu. vit. ʒβ. misce. In these Medicines being made warm may you dip your Tents and Dossills or Pledgets, and so apply them to the bottome of the wounded Part.</i> |
| Another. | |
| Digestive and Deterfiv. | |
| Another. | |
| Another. | |

Sarcoticks.

The Wound being hereby digested and mundified, next are we to fill up with Flesh by Sarcoticks: and these are to be drying and deterging in respect of the Excrements. Of which sort may be reckoned *Unguent. Aegyptiacum, Apostolorum, Basilicon, Aureum, Fuscum, Balsam. Peru-*

Of Wounds in General.

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Peruvian. Unguent. de Betonic. or the like. For this Use also this Powder sprinkled upon the Wound is much commended: *R Rad. Irid. Florent. Aristoloch. rot. Ange- Powder. lic. an. ʒij. Fol. Scord. ʒʒ. Oliban. Mastich. an. ʒij. Croc. ʒj. C. C. ust. & preparat. ʒj. misce, fiat Pulvis subtilissimus.* Or if you please, by adding a little Turpentine hereto, you may make it into the form of an Unguent, by adding to it also a little Oyl of Roses and Wax.

The last Intention is made good by Epuloticks; these to have in them a Skinning quality: and of this sort are *Unguent. Desiccat. rubrum, Diapompholygos, Unguent. album Camphoratum, Empl. Diapalm. De minio, &c.* making your Cicatrizes of a good temper and colour.

I conclude this with an History of *Fracazinus*, which History. *Alexandrinus* doth write of *lib. 7. De Simpl. med. facult.* of one who received a Wound long and sinuous, reaching from his Shoulders even to his Buttocks, in which part it was open: the exterior Vessels did send forth much of a certain *Sanies*; neither was it very deep, not penetrating much deeper then the *Membrana Carnosa*: the which could not be consolidated with many Medicines, but by the application of Cabbage-leaves boiled in black Wine was dried up, and the Patient speedily cured.

C H A P. XIII.

Of a Contused Wound.

WE have already shewn how a Simple wound is to be cured; but when any other Affect is joyned to it, this Affect is first to be cured, and then the Wound. *Galen* doth advise, if any *Phlegmon, Contusion, Ecchymosis,*

Of Wounds in General.

moſis, *Eryſipelas*, or the like, ſhould happen upon a Wound, theſe are firſt to be removed; for they onely do adde ſewell to the fire. And this is held a certain rule amongſt all Authours, that we muſt never expect to cure a Wound, untill we have conquered the Symptoms. For as the Wound of it ſelf doth onely require Deſiccation; ſo having Contuſion joyned to it, this is readily to be turned into Putrefaction, and that to be converted into laudable Matter. And becauſe the ordinary entrance upon the Cure of this Wound is oftentimes intercepted by the importunity of Accidents, let it be your firſt care to reſſeſſe theſe, and then proceed to the Cure it ſelf. If the Accident be Pain or Tumour, allay the Pain by ſome Anodyne Medicine; of which ſort are *Ol. Aneth. Chamomel. Lilior. Roſarum, Crocus*, and the like. Abate the Tumour by removing both its antecedent and conjunct Cauſe; the firſt being the Humour firſt flowing, the latter being that part of Humour which hath already made its flux. As to the firſt, if it proceed of Bloud occaſioning Fluxion, this is to be let out or diſcharged by the place from whence it floweth, or by the place to which it floweth. This Paſſion is curbed and bridled by Phlebotomy, and a cooling Diet: and to keep it from flowing further, Revulſion and Repulſion are two proper engines to effect this; the firſt withdrawing and courting the Humour into another part, the other repelling it when it is once ſent. If other Humours do occaſion this Fluxion, then diſcharge theſe by Catharticks, and ſuch as may answer the nature of the Humour.

We come next to the Wound it ſelf: and here are we chiefly to conſider theſe two Intentions, (*viz.*) to procure Suppuration, and then to generate a new Fleſh. And becauſe, as *Galen* preſcribes, every Suppuration is to be procured by Putrefaction, and every thing that putrefies is affected with a hot and moiſt Humour, the chief Intention therefore here is, to apply ſuch Medicines as may
both

both heat and moisten ; such as are Mallows, Marsh-mallows, Barley-meal, Chamomile-flowers, Melilot-flowers, and the like. As for example ; *R. Fol. Malv. Fl. Dialth. Catapl. Absinth. an. m. j. Rad. Alth. ʒjv. coquantur in aqu. fontana, postea in mortario subigantur, his adde Pulv. fl. Cham. Melilot. Rosar. rub. an. ʒiij. Farin. Hord. Fabar. an. ʒiij. cum Decocto antescipto fiat Catapl. sine addendo Ol. Chamomel. ʒij.* Or this ; *R. Rad. Alth. ʒβ. Malv. Violar. an. m. j.* Another. *coquantur & colentur, colaturæ adde Butyr. Ol. Rosar. an. ʒiij. Vitell. Ovor. nō. iij. Croc. ʒj. misce.* Or this ; Another. *R. Pulv. Rosar. rubr. Fol. & Bacc. Myrtillor. an. ʒij. Farin. Hord. Fabar. an. ʒj. Absinth. Betonic. an. ʒβ. Sem. Cumin. ʒij. Mel. ʒij. cum Vino austero q. s. fiat Cataplasma, sine addendo Ol. Rosar. Chamomel. an. ʒj.* To the wounded Part are we to apply a Digestive made either of Turpentine, Basilicon, and Honey mixed together ; or this : *R. Mel. Digestive. Rosar. Succ. Apii, an. ʒij. Vitell. Ovor. nō. ij. Terebinth. Venet. ʒj. Unguent. Aurei ʒβ. Pulv. Myrrh. Alo. an. ʒj. misce.* In these cases also *Unguentum Apostolorum* and *Hegyptiacum*, especially when the bottome of the Wound is foul, may be applied ; thus ordering it untill it be perfectly mundified ; the which being done, fill it up with Flesh by Sarcoticks : and this will be done by *Unguent. Basilicon, Aureum, Balsamum Peruvian. or Lucatelli.* It being brought up to an equalness, skin it with *Diapompholygos*, or *Desiccationum rubrum*. But if the Contused flesh will not be brought to Suppuration by these, but does rather seem to threaten a Gangrene, here are you to use strong *Lixiviums* and powerfull drying Medicines, having in them power to resist Putrefaction ; such as are *Unguent. Hegyptiacum, Mercurius Precipitatus*, and the like, of which I have been very plentifull in my discourse of a Gangrene. If any other Symptoms do happen, study their speedy overthrow, by using such methods and Medicines as may bring the Part into a better Temper. And if the Wound be so large that there is ne-

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cessarily

cessarily required a Suture, let this be done very loosely ; for it is enough, if by the benefit thereof you can bring the Lips of the Wound together.

History.

Unguent.

To conclude ; A certain Gentleman having received a Contused wound in his Thigh, occasioned by a Shot, the Chirurgeon anointed the places which were contused with Oyl of Roses, and for this purpose amongst the rest did use this Unguent ; *R. Ol. Rosar. ℥jv. Ol. ex Vitell. Ovor. ℥j. Pulv. Vitriol. alb. ℥j. Cer. alb. ʒvj. Cort. med. Sambuc. mss. coquantur simul & colentur.* With this Unguent were anointed all the contused Parts, which hath a secret faculty of removing all evill Symptoms : and as to the Wound, he followed the method which we have already shown, by the benefit of which the Patient perfectly recovered.

C H A P. XIV.

Of Ecchymosis, or Contusion.

Ecchymosis, or an Effusion of blood coagulated under the Skin, is allowed a Solution of Continuity, the which is generally accompanied with some Contusion and Ruption. The Causes of which, whether procured by some Fall, Stroke, or other Accident, you will best understand by the Patient's own discourse. This Ecchymosis does sometimes happen by the Apertion of the mouth of some Vessell, and then this is called *Anastomosis* : the which is procured in respect of the Weakness of some Vessell in that part where this plenty of blood is scattered ;

red ; or by some inward sharp Matter which is allowed to have an incisive quality ; or by *Diapedesis*, the which is a Transcolation or Exiltion ; this also arising from the Coat of the Vessell being made rare and thin, and the Bloud being also thin. But our present discourse does onely reach that which is made by Contusion.

This therefore is allowed a Solution of Continuity ; and in respect of its profusion of bloud it produceth Pain, and hence sometimes do follow Abscesses, the which by Transpiration are to be digested. A large Contusion is not without danger, for this does very often not onely procure Corruption of the Part it self, but also of the whole Body. This is generally reputed an *Ecchymosis*, The true definition of an Ecchymosis. in the which there is both a separation and dilaceration of the Musculous parts, whilst Attrition is allowed to be in the head and tail of the Muscle. It taketh its diversity of figure from its variety of cause : the Parts about it are black, the Bloud being shut up therein, and cannot be discharged by insensible or sensible Transpiration, but by Suppuration. According to the greatness of the hurt may you judge of the danger ; for great Contusions accompanying large Wounds do run the Part into Corruption.

Now whereas *Hippocrates* saith, that obtuse Instruments are the most proper engines for Contusion and Laceration, the most proper Medicine for the cure of this should be *εμπυρτικόν*, or *Suppurativum* : the which ought to be temperate in heat and humour, Emplastick, and obstructing the Pores, and such as may generate Matter. It ought also to second the nature and substance of the native Heat, and by degrees to encrease it. Hence is it, that in creating of Matter the Humour is somewhat altered : and if this Contusion does happen in any Musculous parts, that Part onely does maintain the Bruise which received the Blow or Hurt, whilst the circumjacent Parts do retain their own proper nature. For the Bloud be-

ing out of its proper Cavity, does force it self into some other; and being in its motion hindred, does change its first rudiment. And hence was it that *Philalethus* saith, that Blood, Seed, and Milk, being out of their proper places, do soon run into knotty lumps and putrefy. Now in Conversion of this Blood into Matter, there is made a Pulsation in the Arteries lodging in the Flesh, the which Pulsation the sound man does not perceive, it lying there without Pain; and also in respect of the great space which is allowed them for their operation. But where there does arise Inflammation, *Ecchymosis*, *Erysipelas*, or Abscess, with Pain, the Wounds are also inflamed, when they tend to Suppuration; because this putrefying Blood does soon grow hot and fiery, and in this Ebullition and Fervour of the Blood Vapours are raised, the which also are communicated to the neighbouring Parts, and therein do also generate an Inflammation. And this is done by Consent of Parts. The Heart taking its share of this Inflammation does create a Fever, as *Hippocrates* offereth, *cap. 47. lib. 2.* Whilst Matter is making, it occasioneth more Pain, and does more readily subject the Patient to Fevers, more then when it is accomplished. The generation of this Matter does fetch its origination from strange Blood, over-heated, untill putrefying it is turned into another substance.

Three Chan-
ges of Sub-
stances.

Now there are allowed three *ἀλλοιώσεις* or changes hereof, which are made in the Bodies of Animalls. The first is naturall, as the receiving the Meat into the Stomack, which is there digested and concocted. The second is preternaturall, or Putredness. The third is bred out of a mixture of the former, and this is called Suppuration. The first is made by a familiar Matter, and primogene Heat: the second is made by an exteriour Heat, and strange Matter: the third is framed by an inbred Heat, but this not chiefly governing, neither benign in Matter, not yet altogether estranged from it. These Rules and
Pre-

Precepts, being worth a Chirurgion's taking notice of, have I here presented from *Hippocrates*.

In an *Ecchymosis* therefore are we speedily to procure Suppuration: and whereas Fluxion is chiefly to be relieved, study its Evacuation, by diminishing its store which maintains it, by Phlebotomy, if nothing may hinder it, by Revulsion to change its course; and then secure this concremented Blood, the which if it be in the Body, is to be scattered by inward Medicines, by such as can both dissolve the concremented Blood, and also strengthen the Parts. And for this Use *Sperma Ceti*, black Beer, *Pulv. ad Casum*, and the like, being taken inwardly, are good and proper. Or this *Bolus*; R *Pulv. Rhabarb.* ʒss. *Bolus. Mumm.* ʒj. *Rub. Tinctor.* ʒss. *Sperm. Cet. gr.* vj. make it into a *Bolus* with a little *Dioscord.* Or this; R *Pulv.* Powder. *Symphyt. Terr. Sigillat. Rub. Tinctor. Mumm. an.* ʒj. *Pulv. Rhabarb. gr.* xv. *misce*, *sumat in haustu Vini generosi.* The Skin of a Lamb newly pluckt off, and having Salt finely powdered sprinkled thereon, with fine Powder of *Scordium*, Wormwood and Rue, is an excellent Medicine for a large Contusion, it being applied warm to the contused Part, and there permitted for some time to remain on. Here also are you to consider, if the *Ecchymosis* do happen onely in one Part, whether it be most apt for Resolution, or tend to Suppuration. That way which it enclineth to, you are to follow. If it tendeth to Resolution, apply Resolving medicines, to help forward its design: if to Suppuration, procure issue, and mundify the Ulcer. And as in all other cases we observe as a generall Maxime, that in the beginning we apply Restringtons, to which somewhat of Discussive medicines may be adjoined; so in the end we generally ought to use Discussive medicines: and for this purpose take these few. As, R *Far. Fabar.* ʒjv. *Sal. marin.* ʒjss. *Pulv. Sum-* Catapl. *mitat. Absinth. Scord. Rut. an.* ʒj. *coquantur in Oxymelit.* q. s. *ad Catapl. formam, sine addendo Pulv. Myrrh. Aloes,*

Another.

an. ʒj. Another for the same : R̄ Farin. Hord. ʒij. Pulv. Rosar. rub. Myrtill. Fœnugrac. an. ʒʒ. Pulv. Scord. Rut. an. ʒij. Pulv. Salv. Veronic. Hyperic. Agrimon. an. ʒj. coquantur in Vino rubro ad Catapl. formam, huic addendo Croc. ʒj. Ol. Rosar. Myrtillor. an. ʒj. de Vitell. Ovor. ʒʒ.

Another.

misce, fiat Cataplasma. Another may be this : R̄ Farin. Hord. Fabar. an. ʒjv. Bol. Armen. ʒij. Pulv. Gallar. virid. ʒij. Camphor. ʒj. cum Oxymelit. q. s. fiat Cataplasma. If by these and the like you cannot resolve it, but it still does rather incline to Suppuration, bring it to Suppuration, and discharge the Matter by cleansing the Ulcer : and to the discoloured Parts you are to begin with comfortable Fomentations, which have in them a power to warm, strengthen, and run the Part into Maturation ; such as may be made of Wormwood, Sage, Rue, Scordium, Centaury, St. Johns-wort, Scabious, Veronica, Chamomile-flowers, Melilot-flowers, Cumine, and the like, boiled in water and wine mixed together : whereinto are to be dipped Woollen cloaths, and these to be applied warm to the affected Parts. After this anoint them with some convenient Oyls, as Oyl of Roses, Earth-worms, St. Johns-wort, and the like.

History.

I conclude this Chapter with these two Histories. The first whereof shall be of a Gentleman, who upon endeavouring to strike his Dog with his foot, did fall upon his Hip ; with which Fall, being a very corpulent man, he felt a great Pain, happening by the Contusion he got by his Fall. The Contused place was well anointed with Oyl of Roses and Myrtills, by which the Pain ceased, and no other Symptome or Inflammation followed the Contusion ; by which onely he was perfectly cured.

Another.

The second is of a young Child of three years old, who falling down upon earnest pursuit after two little Dogs, received a Contusion in the hinder part of his Head, not without much Pain, and Vomiting, with Spasm in both of his Arms and Hands, so as he was generally

rally reputed to be beyond all hopes of Cure. *Forestus* being consulted herein, (who is the Authour of this Story) by anointing the Contused part with Oyl of Roses, and the nuch of his Neck with Oyl of Earth-worms, and making Frictions in the extreme Parts, the Child somewhat recovered, and was freed of his Spasm. For his common Drink, was prescribed green Betony to be boiled in Ale, of which he generally did drink. And the Contused place being anointed afterwards with *Unguent. Alabastrinum*, by these he was perfectly cured, and restored to his former health.

C H A P. XV.

Of Wounds made by the Biting of mad Dogs.

WE arrive now at such Wounds as do happen by the Biting of mad Dogs, and of other venomous creatures: and although other creatures, as Wolves, Cats, Foxes, and the like, may be mad; yet most who have writ of this subject do give the first denomination to the Dog, as *Antiochus*, *Paulus Aegineta*, *Oribasius*, *Cornelius Celsus*, and others. The generall repute of the Biting of Animals is allowed to come under a double difference; for some are venenate in their proper nature, and others are less venenate. Those are reputed venenate, which are lodged in venenate and virulent Beasts; and amongst these are reckoned the mad Dog, Serpents, Adders, Scorpions, Basilisks, Vipers, Wasps, and the like. Others are said to be less venenate, which have not in them this virulent spirit; of which sort may be reckoned Man, a Dog that

is

Of Wounds in General.

is tame, a Monkey, Horses, Swine, and the like. The Signs of either do declare their nature. Those which are venomous are most dangerous, and great care not being had, they do commit their Venome to some noble Part, and there implanting the poyson, do soon cause a speedy Death. *Gordonius* reporteth, that the Biting of a mad Dog is most dangerous; for although the Patient do not feel it at present, yet this lurking Poyson some while after makes its appearance. I have read of a Boy, who being bit by a mad Dog, and being well after it for six weeks, after this died of the Bite he received.

Seeing the danger is great, and how it aims at the Principalls of life, let us consult a while the reason of this Poyson, and how it does communicate it self. *Read* tells us it is communicated these two waies; by Biting and Slaver, and by Slaver without Biting. This is sometimes received by the thick Skin of any Part. And this *Matthews* makes good, *Conf.* 82. where he affirms of one putting his hand into a mad Dog's mouth, that within few daies after he became mad himself. It sooner seizeth on some Parts then on others, and is also more readily taken by some Persons then others. For it hath shewn its rage in some speedily, whilst in others it hath had many daies and weeks to act its envy and malicious terrour. And hence may we collect, that this Spittle is pernicious which is contained in the Mouth, and thus agitated, rendered and elaborated into the form of Froath, the which does carry an acrimony and venenosity with it, by reason of Choler which moves it, and this Tyrant does make this ebullition; the which being once made, is sent into the Wounds by the Teeth; by which impressiion it is carried into the Body and its circumstantiall Parts; the which if they happen to be nervous, these are presently stimulated by the venenosity of the Humour, and hereby oftentimes a Spasm and Convulsive motions are created. If it enters either the Veins or Arteries, it speedily doth send

its venenate Vapour through these to the Heart, and doth there tyrannize, stirring up Fevers, and exciting *Syncopē's*, sometimes running the Part into a Gangrene and *Sphacelus*, by overcoming the naturall Heat by its venomous extraneous spirit.

Now as touching the knowledge of the Dog, whether mad or not, you may well guess at it by the Wound: for, as *Avicen* and *Rhazes* write, if we rub the Wound with a piece of Bread, so as it may suck up the Bloud and Matter which cometh out of the Wound, this being offered to a Dog, if he refuse to eat it, or to smell to it, it declares much of the Dog's being mad. Let these Signs serve for Madnes confirmed; the Patient becomes troublesome, and foameth at his Mouth, he hateth water and all liquid things, these being the cause and occasion of his Madnes, his Pulse is small and inordinate, his Members dull and heavy, his Voice hoarse, and his Breathing difficult. If he dies of his Bite, he is troubled with *Syncopē's*, and a little before his departure you will meet him Convulsive.

Signs of a
mad Dog's
Bite.

As to the Cure, these Intentions are here chiefly required. First, to expell the Poyson from the Wound, then to strengthen the principall Parts, and defend them from it, and then to overthrow its malignity. The first is to be performed by Alexipharmick Defensatives, the which should contain in them *Bol. Armen. Terr. Sigillat. Sang. Dracon. an. ʒij. Pulv. Rut. Scord. Salv. Absinth. an. ʒj. Farin. Fabar. ʒij. Hord. ʒj. cum Album. Ovor. fiat Defensativum*: or this; *R. Spir. Vini rectificat. ʒij. Succ. Rut. ʒj. Extr. Scord. Theriac. an. ʒij. C. C. ust. & preparat. Bol. Armen. an. ʒj. Lap. Bezoard. ʒj. misce, fiat Emplast.* An Oyl for the same: *R. Ol. Lumbricor. Flor. Slotan. Oyl. an. ʒj. Spir. Vini ʒij. Theriac. ʒj. misce.* And over these apply this Cataplasme: *R. Farin. Fabar. ʒij. Pulv. Sem. Cydonior. ʒʒ. coquantur in aqua, cum pauc. Ol. Lumbricor. tunc adde Pulv. Fl. Chamomel. Melilot. Rosar. rubr. an. ʒj.*

M

misce,

Of Wounds in General.

misce, fiat Cataplasma, sub finem addendo Croc. ʒʒ. If these work not to any effect, apply Cupping-glasses and Ventoses to the grieved Part, with much flame; and make good Scarification: and if you cannot here well use a Cupping-glass, yet you may scarify and wash the Incisions with Spirit of wine wherein hath been dissolved Treacle, or Oxycrate warm, or the like; and then in other cases may you use Chickens, Rabbits, Pidgeons, Whelps, or the like, cut in the middle, and so applied hot to the Parts, these having power enough in them to call forth the Poyson. These following Emplasters are very beneficiall in these cases. *R̄ Capar. aliquantul. coct. sub prun. Ferment. Farin. Sinap. an. ʒj. Theriac. Andromach. ʒʒ. Fol. Rut. Scord. an. mʒ. misce in Mortario, addendo parum Mell. fiat Empl. Fallopius* does much commend this: *R̄ Pic. naval. ʒj. Sal. Nitr. ʒʒ. Sem. Sinap. ʒij. Capar. Allii sub prun. coct. an. ʒiiij. Assæfætid. Sagapen. an. ʒij. Stercor. Columb. ʒijʒ. Aristoloch. rot. Dictamn. Cretens. an. ʒj. Ol. Lilior. alb. ʒʒ. misce pro Empl.* Or this; *R̄ Galban. Sagapen. Opopanac. Assæfætid. Myrrh. Piper. Sulphur. an. ʒʒ. Stercor. Columbin. Caprar. Anat. an. ʒijʒ. Calaminth. Mentastr. an. ʒʒ. solventur Gummi in Vino, his addendo Mel. opt. q. s. pro Emplast.* These are to be used while the whole Poyson is extracted. Phlebotomy here is altogether useles, for this does rather adde then extinguish the Flame: neither is Purging proper in the beginning. Keep the Wound open at least for forty daies: if it be but small, dilate it, for the more ready discharge of this venenate Matter. Endeavour to strengthen the Parts inwardly by prescribing a drachm or two of Mithridate in a morning, *Venice-Treacle, Oruiatan, Elixar proprietatis*, this in ten or twelve drops; or by giving your Patient of *Pil. Ruff. or Electuar. de Ov. ʒj.* in a morning. In Bittings which are less venomous, we may apply hot Oyl of Elder, the Yolk of an egg mixed with some Butter and Saffron to ease pain, and over these this Cataplasme:
R̄ Rad.

R Rad. Alth. Malv. Violar. Absinth. an. m. j. coquantur in Catapl.
vino & aqua, colaturæ adde Pulv. fl. Chamomel. Melilot.
Rosar. rubr. Farin. Tritic. an. ʒj. his addendo Vitell. Ov.
no. j. Croc. ʒj. Ol. Rosar. Chamomel. an. q. s. fiat Cataplasma.

After these we must come to Suppuratives, because of the Contusion; and for this Use *Basilicon* and *Fuscum*, or my former Digestive are proper. Then to deterge, fill up with Flesh, and skin the Wound. *Fabritius Hildanus* is very plentiful in Histories of these sorts of Wounds, to whom I commend you, and shall conclude with these Histories, which are both rare and strange.

Fracastorius writes of a Lad, who after eight months History. having been bitten by a mad Dog, the Poyson began to appear, and then it vanished; in the interim there was not any Fever perceived, or any other ill Symptom appeared. The Patient not understanding where this and how perniciously it lodged, it at length made way to his Heart; the which when it had seized, it there fixed its most implacable impresses of sorrow and pain, so as he could neither stand, goe, or lie in quiet, but like one distracted steered a very disorderly course, growing very thirsty: and that which heightened and added to the mischief, he could not endure the sight of any liquid things, and had rather yield to death than to take any Cordials or Juleps, were they never so advantageous. Hence did arise a foaming at his mouth, his eyes being strangely fixed; and within a few daies after these direfull Symptoms made him yield to the grave.

Cardanus, 9. Tract. 5. lib. 2. writes of *Alexander Bras-* Another.
ceus, who was bitten by a mad Dog, and having many Physicians in Consultation, they enquiring the cause hereof, found that he had kissed a mad Dog; and the day following, as they presaged, he died. Hence therefore may we see, that the Spittle of a mad Dog is the worst of Poysons; for being thus inwardly taken by a Kiss, the Dog did bite him, upon which Bite he died. *Nico-*

laus writes, that the Son of a Painter in *Venice* being bitten by a mad Dog, and cured by his Physicians, had not the signs of one bitten by a mad Dog untill eight months after. And *Amatus Lusitanus*, Cent. 7. testifieth, that he saw a man of *Theſſalonica*, the third year after his being bitten with a mad Dog, to have run mad himself.

C H A P. XVI.

Of Wounds made by the Bite of an Adder, or any other venomous Creature.

THEſe may be properly called Stinging Bites; and theſe came into the world ſoon after Man's Fall, and have continued ever ſince, for the puniſhment of ſinfull Man. I ſhall begin this Diſcourſe with the Bite of an Adder, which by ſome is called *Coluber*, *quia colit umbras*, or à *Lubricis tractibus*, as *Oribasius* obſerveth; that is, becauſe it haunteth Shadowy and grovy places, or from her winding Paths. When this Animall does bite a man, the Part becomes of a leaden colour, and very painfull. If not preſently cured, ſœtid and black Matter does iſſue from the Sore.

Its Cure.

As touching the Cure hereof, you may uſe thoſe which are preſcribed in the foregoing Chapter. Dreſſ the Wound with Treacle diſſolved in the Oyl of Scorpions, inwardly giving your Patient Treacle-water, or *Aqua Scordii composita*. to which may be added a little Vinegar, *Carduus*-water, Rue-water, and the like.

Parans,

Paræus, lib. 20. cap. 23. shews how he cured a Cook History.
bitten with an Adder, upon gathering of wild Hops from a hedge. So soon as he was bitten in the Hand, he sucked the Wound with his lips, hereby thinking to mitigate the pain, and extract the poyson : but so soon as his tongue had touched the Wound, it swelled so big, that it hindered his speech ; besides which, his Arm even to his Shoulder so tumefied, and caused such sharp pains, that he twice fainted away. In this miserable condition being undertaken by him, he washed his Mouth with Treacle dissolved in White wine, adding to it *Aqua vite* ; the Arm was scarified with many and deep Scarifications ; and the Bloud, which was both waterish and full of *Serum*, was permitted to flow plentifully from the incised Parts, the which were afterwards well washed with Mithridate and Treacle dissolved in *Aqua vite*. The Patient was after this committed to his warm bed, and there caused to sweat, not to sleep, lest hereby the Poyson might be drawn to the inward Parts. By this method all the malign Symptoms ceased, and the Wound was kept open for a long while, for the discharge of the peccant Matter, and washed with Treacle and Wine : and within a small while after he recovered. (By the way, such people who do make it their trade to catch Adders, do apply the Powder of them to the affected Part, if they be bitten, and do take the same inwardly.)

To these I shall adde Toads, for these two are the most Bitings of Toads.
venomous creatures we have in *England*. And what a Toad is, is so well known, that it will be needless to set down its description. This onely I shall assert, it leappeth not as do Frogs, but creepeth slowly ; partly by reason of its short legs, and partly in respect of its dull body. If it be stirred, it swells, and looks very ugly with its flaming eyes. It infecteth by its venomous Spittle or Slaver, and whom it thus infecteth it does inflict in them most of these following Symptoms : it generally does.

does change the Colour of the body, the Patient does find difficulty of breathing, is perplexed with troublesome *Syncope's*, with blackness of Lips and Tongue, Raving, cold Sweat, and the like.

As touching the Cure hereof, Treacle, Mithridate, *Orviatan*, *Electuar. de Ovo*, *Aqu. Theriacal*. *Bezoard. mineral*. Harts-horn, *Terra Lemnia*, and the like, are good; and to the wounded Part use strong *Lixivium's*, such as I have set down in the Curing of a Gangrene, being made of *Scordium*, Rue, *Angelica*, Wormwood, Sage, Bays, and the like.

History.

I will conclude this with two remarkable Histories. The first is of *Johannes Boccatus*, who while he was sporting with his Beloved in his Garden near a bed of Sage, by rubbing his Teeth and Gums with some of the Sage-leaves, he speedily died. His Wife was called before a Judge, who enquiring of her how her Husband became poysoned, she carried with her some of the same Sage-leaves to shew him, and tasting thereof in his presence, died also, to the great admiration of all the By-standers. The wise Judge considering of which, did much suspect this Sage, and ordered it to be pluckt up from the roots, and commanded it to be committed to a workman's care to clear the ground: upon the doing of which, there appeared a great black Toad, which had harboured at the bottome of the Sage, the which by its poysonous Vapour and tabifick *Iluvies* did infect the whole Plant with its venomous *Saliva* or Slaver; these two taking whereof, it did occasion the loss of both their Lives. And hence may be collected, although Toads have no Teeth, yet have they heard Gums, and the parts to which they adhere they do so closely constringe and close, that they compell and force their whole Poyson into the whole part, and thereby do infect the whole Body by their fastning.

I have

I have also read from a very Worthy Friend, of two Another. Merchants, who while Dinner was providing, took a few turns about the Garden which belonged to the House, wherein they delighted themselves with the beauty and shape of the Sage-leaf; of which they pluckt some, and these being unwasht they put them into a Glass of Wine. They had scarce dined, but by drinking of this Wine they were taken with a *Vertigo*, all things seeming to their view to turn round: and being thus blinded, they both fell into a *Syncope*, and were speedily afterwards overtaken with Convulsion; their Tongues and Lips grew black, with a horrid Aspect, accompanied with cold Sweats, and their whole Bodies were raised into a Tumour by this Venome; whereupon both very suddenly died. It being generally reported that they were both poysoned, the man of the house and his servants were all convened before a Judge, for suspicion of poysoning these two Gentlemen; who upon their Examination declared by a generall consent, that themselves putting some Sage-leaves into their Wine were herewith poysoned. The Judge hereupon sending for a Physician, and enquiring of him whether Sage might be infected with Poyson, he presently asserted it might. He further enquired of the Master of the Garden, whether any virulent Slaver, Froath, or Matter, was upon the Sage. To which they all readily answered, There was. And upon making a Cavity at the bottome of the Sage-bed, there was found a great Toad, the which then was conjectured to poyson the Plant at the root by its Slaver and venenate Liqueur. And hence may we collect how imprudent all such men are, who do readily eat Herbs and Fruits newly plucked, without being either washed or wiped.

C H A P. XVII.

Of Wounds made by Poysoned Weapons.

IF any Wound be tinged with Poyson, we are to hasten its extirpation by Alexipharmicks : and because this Poyson does consist of very subtile parts, whose envious qualities it chiefly does study to fix and hinde upon the Heart ; and whereas this ill-conditioned Poyson does corrupt the Body, and turneth it into its nature, and is not here at quiet, untill it does reach the Fountain of life, there creating a change in the principall Faculty, and there getting conquest does speedily dispatch and demolish the whole naturall Faculty ; let us enquire into its nature, and see what forms and shapes it does carry. *Hippoc. 6. Epid. Text. 6.* calls it κακῆργον, or *Maleficum*; the Greeks call it δειντήριον or *Corruptorium*. And hence *Virgil, Æneid. 9.* hath this verse,

Ungere Tela manu, ferrumque armare veneno :
and *Homer, Odyss. 1.* hath this,

Φάρμακον ἀνδρὸφόρον διζήμενα, ὅρα οἱ ἐν,
ἴδῃς χρίεσθαι,

that is, *Pharmacum homicidum querens, ut ei esset unde sagittas oblineret.* But as touching Poyson it self, it is generally allowed a compound substance, not naturall, the Heart's great enemy, and that treacherous Invader which does corrupt the whole Body, and does overthrow the naturall Temper thereof. And as touching this, there are various Opinions extant : for some there are who write, that it may be so made, that it cannot inflict its cruelty in some in a moneth ; in others in the space of a year,

in

in some in a greater time. And that it may be so made, as to kill sooner or later, is out of doubt. Now that which it chiefly aims at is the destruction of the native Heat and radicall Moisture, endeavouring both to extinguish and corrupt them. It hath various subjects on which it hath its dependance, as a Vapour, Juice, or a terrestriall substance : and these three do comprehend all.

Theophrastus, lib. Plant. 9. cap. 15. writes, that the *Æthiopians* did anoint their Arrows with a pestiferous Root. Lead also is very ready to take the impress of Poyson : for both Nature and Experience do make good, that as Metalls are purged by the Fire, and so forced to leave their terrene and sœculent substance and impurities ; so although the Fire does perform this very exactly, yet these Metalls may imbibe a strange substance by their nature. As for example, take Vinegar, Soot, Salt, and the Juice of Horse-Radish-root, and mix them together, and let them dry, and you will find them make the substance of Iron. And Iron it self, being oftentimes infused herein, will soon harden at that rate, that unless you have experienced the same, you can scarce give credit to it : and on the contrary, being oft extinguished in the Juice of Hemlock, Soap, and Marsh-mallows, it will speedily grow soft. Tin and Lead being oftentimes extinguished in the Juice of Squills, do so affect these, that they do uncloath their outward coat, whilst the other thereby is made black and soft. The which could not be, if they retained not in them some of its spirit and virtue. And although the Fire doth dismiss and purge these, yet they may be granted with ease to imbibe another kind of substance. Thus how oft have we seen Copper tinged and grow yellow by applying to it spirit of *Lapis Calaminaris*, and Tutty ; and again to grow white, by the spirit of Arsenick, Orpiment, and the like ? Whence we may inferre, that Metalls, out of which these Instruments of mis-

Of Wounds in General.

chief are made, as Shot, Bullets, and the like, may receive a spirituous substance answering their nature, out of which, as out of so many various mercuriall, foetid and lethiferous waters, they seem to be framed, by adhibiting the Juice of Wolfsbane, Squills, *Apium Risus*, or *Herba Sardonica*, and the like, and of venomous Beasts, which by reason of their contrariety of substance do hurt and corrupt our substance.

As thus, for example : *Apium Risus* does infect by Laughing ; of which *Apuleius* saith, that if one take thereof in the morning fasting, it kills him with Laughing. *Tragus*, lib. 1. cap. 159. writes of a Woman gathering an Hemlock-root amongst Parsnips, and boiling them together, and eating thereof, that it made her as it were so intoxicated, that she endeavoured to climb up the house, and did think she could fly. But by taking a draught of Vinegar she was recovered hereof. A man having the Juice of Wolfsbane mixed with his Bread died the third day, with a great company of formidable Symptoms which attended him. This is reputed to have in it that venome that is scarce to be overcome by the best of Alexipharmicks. Nightshade also hath allowed a venenifick quality, as *Tragus* affirmeth, *Hist. Stirp. lib. 3. cap. 43.* *Mercurialis* writes, that the Mandrake-apple, called by some *Bella Donna*, being eaten by some Children, allured to feed on it by its fair and beautifull looks, it hath speedily killed them. *Lemnius* declares, *Herb. bib. cap. 12.* that having in Summer-time carelessly gathered a Mandrake-apple, he did hang this fair and specious fruit in his Closet, where sitting a while he grew so sleepy, that he could scarce shake it off, forgetting his Apple did hang over his Head. Waking on a sudden, and consulting with himself what was or might be the cause of this his Sleepiness, and casting his eyes upwards, he espied this Apple hanging over his Head, and removed it : the which being removed, he began speedily to grow fresh and brisk again.

again. *Ponzettus*, lib. 6. cap. 32. *de Veneno*, writes, that he saw a man, who had taken a drachm and a half of Hellebore, to die presently. *Matthiolus*, lib. 4. cap. 141. writes, that a present Poyson being made out of the Juice of white Hellebore, and Arrows or Shot being herein macerated and illinated, they do cause speedy death to that person wherein they are lodged, or in those Parts through which they do pass.

Thus have I shewn you, that a venenate Mixture being made of any of these, and Weapons made either of Wood or Iron macerated therein, and then sent into the musculous Parts, they do there speedily shew their venomous qualities; the which if they be not speedily fetched out, they do leave their pernicious marks of Venome, which does prove a perfect destroyer of the whole. And as daily experience does teach us, many pestiferous and venenate Mixtures are and have been of late invented and found out. And if Bullets or the like Instruments be herein dipped, tempered, and tinged, and shot into any Part, occasion a Wound, although it be not adherent, yet in its quick passage this Poyson hath that subtile, nimble and pestiferous quality, that it does speedily creep from the small Vessells to the greater, untill it hath got advantage of the principall Parts; and having once got footing therein, it speedily does there exercise that furiousness, that it does contract the Life of man into a small compass of warmth and heat. And hence let no man doubt, that Wounds thus made by Shot, or any other kinds of Instruments which have power enough in them to receive Poyson, but that they may be made poysonous. And by how much these are made of very subtile parts, by so much the readier may they penetrate: and their malign Vapours being sent through the Veins, Nerves and Arteries, do at once infect both the naturall, animall, and vitall Faculties, in which conflict they do suffocate by their contrary preternaturall mixtures. As often therefore as

Of Wounds in General.

any thing of Poyson is dreaded in a Wound, we are chiefly to have a respect to its dangerous attempts: and because such Wounds as are made by poysoned Weapons are for the most part mortall, not so much in respect of the quality of the Wound, as in respect of the quality of the Poyson; we are therefore first to lessen its vigour, and that because it aims altogether at the Heart, the Fountain of Life.

Cure.
Two Inten-
tions.

In this Cure these two Intentions do chiefly offer themselves; first, that we strengthen the Heart against its fury, and that we speedily draw forth the Venome the same way and by the same Orifice it was taken in. And though in other Wounds Solution of Continuity does onely require Union; yet here, having Poyson adjoyned, as a grand enemy to our Nature, this is first to be extracted and discharged. And this is to be done by keeping the Wound open. In other Wounds indeed it must be our greatest care, to avert Fluxion and all other Symptoms from the affected Parts by Purging and Phlebotomy: but in poysoned Wounds, so long as the Poyson urgeth, we are here contrarily to endeavour the Attraction of this Poyson to the affected Part, and by that to discharge it.

And here, that we may not run our selves upon the rocks of Mistake and Unadvisedness; we are first to consider in what part this Wound happeneth. For if it hath happened in the Nervous parts, it is very dangerous: for hereupon by applying of sharp and biting Medicines or Cauteries, Convulsion does oftentimes arise. If the Wound happeneth in that Part where we may not with safety scarify, nor apply these sharp Medicines, we must here apply such Medicines as may fetch forth this Poyson by their own propriety and substance. We are with all speed to fetch out the Poyson, and to lessen its vigour. Thus if the Flesh of the Wound be livid, and its colour contrary to that of other Parts, accompanied with extraordinary

ordinary Pains, Inflammations, and Debilitation of the whole Body, or Alienation of the Mind, and these happen without any manifest cause, these in every respect do declare Poyson to be present.

In these cases the Chirurgeon is to arme himself with Bole-Armeniack; *Smaragd.* Bezoar. Scorzonary roots, *Scord.* Rue, *Angelica*, Gentian, Tormentill, Bistort, Balme, *Veronica*, St. Johns-wort, and the like, being made either into Decoctions, Syrupes, or the like. Amongst Compounds may be reckoned *Orviatan*, *Theriac.* *Andromach.* *Mithridat.* *Electuar. de Ovo*, *Diatefferon*, *Confect. de Hyacinth.* *Aqua Theriacal.* *Scord. compos.* *Tinctur. Croc.* *Elixar Proprietat.* and the like. As to the affected Part, this may be evocated either by Cupping-glasses with much flame, if to be permitted, or to scarify the Part so as the bloud may come out plentifully. After this it is to be washed with warm Vinegar, in which Mithridate or *Venice* Treacle hath been dissolved. For this purpose Chalk also mixed with Honey and Treacle is very good. Garlicke and Onions beaten with some *Carduus benedictus* is by some much commended. For this also the Actuell Cautery is usefull, if it may with safety be applied. To the wounded Part may this be applied; *R. Terebinth. Venet. ʒij. Ol. Hyperic. ʒj. Theriac. Andromach. ʒʒ. Euphorb. recent. Terr. Sigillat. an. ʒij. parum coquantur simul,* and apply it. In this case also *Præcipitate*, or *Ægyptiacum* to which some Mithridate is added, is very proper. *Avicen* for this Use does much commend this following Emplast. *R. Ferment. acr. Mell. opt. an. tʒʒ. Visc. Emplast. Quercin. ʒjv. ex quibus fiat Emplast.* Or for this purpose take these following. *R. Ammoniac. Galban. Bdell. an. ʒʒ. Another. Styrac. liquid. ʒiij. Sulphur. ign. non expert. Myrrh. an. ʒij. Euphorb. Præcipitat. an. ʒj. Ol. Mattheol. Terebinth. an. ʒij. dissolventur Gummi Aceto Scillitico, & cum cæteris miscantur, & cum Pic. naval. q. s. fiat Emplast.* Or this: *R. Summitat. Hyperic. m. ij. Cardu. benedict. Scord. Tibac. Another.*

Of Wounds in General.

Another.

Defensive.

Vincetox. an. m. j. Rut. zij. Rad. Serpentin. zij. Absinth. ʒʒ. contundantur, & modo Emplastri admoveatur. This also is much commended by *Quercetan*, both for attracting the Poyson, and also for drawing forth the Bullet, or the like: *R. Ammoniac. Bdell. solut. in Acet. rosat. zij. Galban. ʒʒ. Mumm. Thur. Mastich. an. zij. Camphor. zij. Corall. utrinque, Magnet. preparat. Asphalt. Carab. an. ʒʒ. Rad. Aristoloch. rot. Serpentin. Arundin. an. zijʒ. Cer. Pic. naval. an. zij. Alabastr. zij. Ol. Terebinth. Ovor. an. q. s. fiat Emplast.* This Cataplasme does much good, being applied to the whole affected Member: *R. Fl. Verbasc. Hyperic. Rosar. rubr. an. pug. ij. Fol. Rut. & Hyoscyam. an. m. j. Camphor. ʒʒ. coquantur cum Aceto in Cataplasmatibus formam.* This does both ease Pain, and prevent Inflammation.

When the Poyson is all drawn forth, fill up the Wound being well digested and deterged. And here, according to *Celsus* order, are we to make a good Bandage over the Part, but not too strict. And if the Poyson have onely seized some small extreme Part, if there be no good to be done at the first, amputate the Member; for delays do here prove very dangerous: hereby taking care that the Venome do not spread any further, for this remaining maketh the best of Medicines of small effect. In other cases digest, mundify, incarn, and skin, as you doe in other Wounds.

History.

To conclude; *Ctesias*, an old Authour, in *lib. de Rebus Persicis*, writes of a Woman who through her whole lifetime dreaded Poyson, and made it her greatest care to escape it. She invited another woman to dinner; who seeing her Knife lie on the Table, the which she for many years before never parted from her side but at dinner-time, took up this Knife, and poysoned it at the end. She cutting her victualls therewith was soon dispatched of her life. The other parts of the meat which were untouched by the Knife were void of all Poyson. Hence also may we learn, that all such people as do dread Poyson must

must not let other people be their Carvers. For *Mercurialis* writes, *lib. de Venenis*, that this Woman under pretence of kindness carved for the other which dreaded the Poyson, who dreamed not of any poysonous quality to be shrowded by her; which yet proved the loss of her Life.

A Captain being wounded by a poysoned Bullet, was Another. by this following method cured. The Wound being scarified, then the Actuell Cautery was applied, and afterwards this following Medicine used; R̄ *Ol. Sambuc.* Mixture.

ʒj. *Ol. Myrrh.* ʒij. *Sulphur.* ʒiij. *Spir. vini q. s. fiat mixtura*: above which was applied *Theriaca Andromachi*, and this Cordiall Potion ordered him; R̄ *Aqu. Acetos.* ʒiij. *Mi-* Cordiall.
thridat. ʒβ. *Syr. Limon.* ʒjβ. *Dioscord.* ʒj. *Terr. Lemn.* ʒij. *misce.* The fifth day was applied this following Unguent; R̄ *Cer. Citrin. Pic. naval. Seb. Ovin. Ol. Antiqu.* Unguent.
an. ʒij. *Galban.* ʒβ. *misce*: and with this sometimes was mixed *Ægyptiacum*. The Wound being hereby digested and mundified, it was filled up and skinned as other Wounds.

The *Spaniards* do generally poyson their Weapons with the Juice of white Hellebore, which Weapons thus poysoned if they happen to touch the Veins, so as the least part of the Bloud be therewith affected, they soon die who are hurt hereby. Those Compositions also made of Arsenick, Sublimate, Cinnaber, Realger, and the like, how apt they may be made for this use, no knowing man will deny. But to treat further hereof would be too tedious: I therefore do recommend you to *Schenckius*, *Parrey*, and other such Authours, which have writ fully of these things.

C H A P. XVIII.

Of Gunshot-Wounds.

Such Masters of Art who have dwelt many years in the Wars, and have hazarded their Lives as well as their Fortunes with their experience therein, will curantly grant, that every young Chirurgeon, who intends to doe his King service and his Country a kindness, his Art right, and his Patients pleasure, ought well to understand the Therapeutick part of his Art, before he enters upon the Practick. And when they enter the stage of Gunshot-Wounds, they ought so readily to be prepared with the Knowledge of them, and the Instruments which do occasion them, that they may make their speedy address to their Entrance, Form and Shape, and from thence derive their first Intention. This part of Chirurgery does not so particularly belong to the City-Chirurgeon or Countrey Practitioner, Domestick Wars not being so frequent: yet to every one it is very usefull and profitable, as upon Accidents, or Duells, and the like. But as to these Wounds, as they are artificiall, so should they meet with a man of Art to undertake them. For hereto do belong many weighty Considerations; as the Difference of these Weapons, and the Places whereinto they penetrate. And out of these two do arise two Intentions, (*viz.*) of Cure, and Extraction. The Weapons Shapes, Form, and Make, are also to be considered; and their substance of which they are made, being either of Wood, Iron, Steel, Lead, Brass, Glass, or Bone; with the variety of their Forms, being either long, triangular, quadrangular, round, obtuse, sharp, and the like; these also being

being either large, or small : respect also is to be had to their Number, being one, or more. And having of every of these given you a slight draught, being conducted by *Hippocrates*, the Master of the Ceremony, I here do commend you to the Figure, which does relate how the humane Body may receive the impress of many kinds of warlike Instruments, no Part being shot-free from the Head to the Foot. The Figure is presented you before, near the beginning of my discourse of Wounds in generall; and also in that of particular Wounds.

Before I enter upon the generall Treatise of Gunshot-Wounds, let us take a small view, and see what Gunpowder and Shot are made of. And here may we find, that a *Franciscan* Fryer, called *Bartholdus*, Anno 1380. being an Alchymist, was the first that found out the true Composition of Gunpowder, which is now in use. *Roger Bacon* 1284. does make mention of Gunpowder, with severall others before him; but it never came at its due perfection of Composition till the time of the aforesaid Fryer. Which Composition we may find framed out of these Simples, Salt-peter, Sallow or Willow-coal, Sulphur, and *Aqua vite*. This therefore in its essence must not be allowed venenate, daily experience evincing the contrary, by shewing and declaring the contrary effects. Thus Sulphur (which is the first) is so far from Poyson, that it is accounted a most excellent Medicine for Affects of the Lungs, and not for these alone, as *Galen* saith, 9. *Simpl.* 36. It is an admirable Medicine against the Itch, and a thing at this day used much for the same. Its Spirit is oftentimes inwardly prescribed in Juleps for the allaying of Fevers. And in this place, being of an Oleaginous substance, it retaineth the fire longer then the Coal being once kindled. Salt-peter is also used in Burning-fevers, cooling and allaying the Patient's thirst. And as all Salts have a Communion with each other; so this, being of thin and subtile parts, is very free from any Venome.

The Composition of Gunpowder not venomous.

For take it from its Habitation, where you may see for the most part how and where it dwelleth; it cannot be allowed to have any dealings with Poyson; for it is made out of a fatty Substance, forcing it self through the Walls of some old and cold Cellars. As to Sallow or Charcoal, which is the third Ingredient, the which does speedily take fire, this also is void of all Poyson. And for the Wine or *Aqua vite*, how far this is different from Poyson, every boon Companion and Good fellow will sufficiently acquaint you. Thus have I presented you with a brief description of Gunpowder, and its essence, and touching its transmutation into a fiery quality. Experience and reason will fairly contradict its having any commerce with Poyson. And if any be desirous to know the reason, why Wounds made by Gunshot do generally look black; I answer them, that it is not the effect of Heat brought with the Bullet, but the force of Contusion, which does discolour the flesh. The which I am sufficiently satisfied in, being made an Example of the same in the *Dutch Wars* 1665. and 66. where being Chirurgeon of one of his MAJESTIE's Ships, I was wounded by the wind of a 24 pound Bullet, by which my Arm was miserably fractured and contused. But to proceed; this Contusion cannot but be great in respect of its violence it is sent with.

And this brings me to the second thing, the Shot or Bullet: and these are made of Lead for the most part in pitched Battels ashore, as in Armies; although at Sea chiefly of Iron. This is very currant also, that these of their own nature do carry no Poyson in them. For Lead being beaten to powder is good for old Ulcers; and applied in its own metallick form and beaten thin, it does depress the lips of old sordid Ulcers, and stop the encrease of Scirrhus Tumours. Besides this, have we not seen many Bullets shot into the Body, and there to have remained for severall years, without any hurt or detriment.

ment to the Patient? Lead therefore of its own simple quality we ground to be void of all Poyson: but how ready this may be made to take its impress, we have already declared.

We now therefore come to the Wound it self. And he that will accurately understand the difference of these Wounds, must well consider the Nature of the Parts which are thus wounded, their substance, use, action, position, sense, and figure; the essence of the Division or Solution of Continuity, and its proper differences: all which are the true rules which must direct him to his curative method. To this knowledge also does conduce the right understanding of their proper differences, being either large or small, superficial or deep, long or short, thick or thin, and the like. Some of which are most proper for destruction of the whole Body, others more apt for taking off a Part; some most fit for passing through the Center, others onely lacerating the Nervous and Musculous parts; some having in them power to break Bones, others warrant onely to lacerate and contuse the Flesh; some of these made of their own metalls, others having added to them strange bodies: every of which carry with them force enough to cause Solution of Continuity.

As touching
the Differences
of Gun-
shot-
Wounds.

The Signs of these Wounds are also taken from their Figure, or Colour, for they are generally round, and of a livid Colour; from the Sense being there inflicted, making or causing an obtuse sense in the Part, or Contusion, the Part chiefly suffering an *Eechymosis* by reason of the Bullet. If these appear, they declare a Gunshot-Wound.

Signs of a
Gunshot-
Wound.

Come we next to the Judgment and Presage hereof. These are generally allowed dangerous for three severall reasons, regarding either the Excellency of the Part affected, the Hurt and the vehemeney occasioned by the greatness of the Weapon, and then its Malignity. Thus

Presage.

if the principall Parts, as the Brain and its substance, be wounded, we do judge the Wound to be lethiferous. If the Lungs, *Diaphragma*, Ventricle, Spleen or Kidneys be hurt by shot, every of these assuming the names of principall Parts from their Office, they are for the most part deadly. Of the same kind may be reckoned Wounds received in the Intestines or Bladder; these being Spermatrick and Membranous parts, denying Agglutination. If the Fleshy parts onely be wounded, and the Constitution good, these may with ease be cured. Wounds of this kind are harder of cure then others, by reason of the Contusion. Wounds by how much the larger and deeper they are made, with dilaceration of the Nerves and Nervous parts, and fracture of the Bones, are accounted the more dangerous. Wounds also in the Joynts have their variety of Symptoms, the which they do fetch from their greatness. Those Wounds which have Venome complicated with them are very dangerous. In the most desperate cases we are not perfectly to despair, for Nature does sometimes play that happy part which Art could never expect. And hence *Cornelius Celsus* does advise, to use our best skill and judgment even in the most desperate case, rather then to leave the Patient void of all help.

Cure.

Five Intentions
required.

As touching the Cure of these Wounds, because they are complicated with various Indispositions, they do require a diversity of Intentions. And hence, as a generall Maxime, are we to take our First Intention from that Symptome which is most direfull and urgent, not neglecting the Wound. Hence therefore, if any preternaturall body, as Bullet, Arrow, Splinter, or the like, do accompany this Wound, this is first to be extracted, as being its chief Cause; the which being removed, the Affect does cease: and without a regard to which, the Wound is not to be cured. For this does bring Pain and Inflammation with it, the which are first to be corrected and abated. The Second is, to ease and assuage Pain, which

which is a great enemy to these Wounds; for Fluxion does proceed hereby, and this does raise the Wound into a Tumour, the which is known by its colour, heat, and dimension. The Third is, to bring the Contused and Wounded parts into a fair Digestion. The Fourth is, to mundify and cleanse the Wound from all filth and excrements, and to fill it up with Flesh, and skin it. And the Last is, to correct all Symptoms which may happen. Of each of these in their order.

And first, as touching the First Intention, of this I have already sufficiently enlarged; where also I have given you a view of those Instruments which are very proper for performing of this Operation: I shall therefore not charge you here with any further discourse hereof.

Come we therefore to the Second, as touching the asswaging of Pain: and of this also I have fairly touched. But because in these Wounds there is generally a vehement Pain attendant on them, which does weaken the Patient, hindreth Nature, causeth Fluxion, prostrateth the Faculties, and produceth the most direfull Symptoms, I must here a little enlarge thereof. For if this be not removed, expect no happy proceeding as to your Cure. To this Symptom ought we to make a speedy application for its overthrow, by changing the Temper of the whole Body, and making use of such Topicks as may challenge its removall. Amongst such Engines may be accounted Cataplasms and the like, such as may both abate Pain, and intercept Fluxion: and these may be made of Bean-meal, Barley-meal, with Powder of Roses, Myrtills, Mal-lows, and the like, boiled in Milk. To which may be added *Ol. Rosar. Axung. &c.* And for allaying and quieting hereof, take these following Medicines. *R. Ol. Sam-buc. ʒij. Sulphur. viv. ʒij. parum coquantur, & utere.* Oyl of Turpentine with *Hyperic. cum Sulphure* are excellent Medicines here. Pain being bred by ill Humours or Cachymy, these are to be removed by right ordering of

Of Wounds in General.

- the whole Body : (but this more properly belonging to the Physician, I leave it to him :) then proceed to the affected Part. And for our Use we may meet with severall Cataplasms, Unguents, Oyls, Fomentations, Emplasters, and the like, for easing of Pain in these cases. To begin with Cataplasms : *Rx Rad. Alth. Consolid. major. an. ʒj. Fl. Chamomel. Melilot. Rosar. Hyperic. an. mʒ. Summitat. Absinth. pug. ij. his addendo Farin. Fabar. Hord. Rad. Alth. in pulv. an. ʒjʒ. fiat Catapl. cum Lactē.* Or this :
- Another. *Rx Farin. Hord. Fabar. an. ʒjv. Pulv. Myrtillor. ʒj. Pimpinell. Consolid. major. Hyperic. an. ʒʒ. coquantur in aqu. & vino rubro q. s. cui adde Ol. Sambucin. Rosar. an. ʒjʒ. Vitell. Ovor. n^o. ij. misce.* As for Fomentations, take these. *Rx Fol. visc. Pomor. minutim concis. cum fruct. m. iij. Rad. Alth. cum foliis Malv. Violar. an. m. ij. Lin. Fœnugrac. an. ʒij. Fl. Cham. Melilot. Rosar. an. pug. ij. Fl. Sambuc. mʒ. coquantur cum Lactē pro Fotu.* This doth admirably abate Inflammations, assuage Pain, and does very speedily run the Part into Suppuration. A Defensive.
- Defensive. for the same. *Rx Pulv. Rosar. rubr. Myrtillor. an. ʒj. Bol. Armen. Terr. Sigillat. an. ʒvj. Succ. Plantag. Solatr. an. ʒj. Acet. Rosat. ʒij. Ol. Rosar. Myrtin. an. ʒij. Cer. ʒij. misce pro Defensativo.* Ambrose Parry in this case does much commend *Ol. Catellorum* or Oyl of Whelps, being
- Defensive. of great Virtue in Gunshot-Wounds. Oyl of Roses, Vinegar, and the Whites of Eggs beaten together, with a little Powder of *Bol. Armen.* and *Sang. Dracon.* and laid over the Part, will doe very well. In these Wounds we are also to respect Ligature, being neither to be applied too strict nor too loose : the first occasioning Pain and Fluxion, and so Inflammation ; the latter making a ready way for the falling off of the Dressings. And if there be fear of Inflammation, which does generally attend till the seventh day, use the same Remedies, and change them twice in a day. The Tents or Pledgets to be applied to these Wounds should be dipped in Oyl of Turpentine,
- St. Johns

St. Johns-wort, and a little *Aqua vita* mixed together : and use these untill the Inflammation be past.

The Third Intention is satisfied by Suppuration, that ^{Third Inten-} is, by such Medicines which by their innate Heat can tion. purchase Matter, or bring the Wound to Digestion. And this ought to be done speedily also, lest the excrementitious and foul Matter lodged in the Wound, and not speedily fetched out by Suppuration, do procure Fevers, Pains, and other horrid Symptoms. And these are allowed their severall orders. For the first you may order this : *R. Ol. Rosar. ʒiij. Vitell. Ov. no. j. misce.* A second may be this : *R. Ol. Rosar. ʒij. Vitell. Ovor. no. ij. Croc. parum.* A third is of this sort : *R. Terebinth. ʒjv. Cort. Thur. Mastich. an. ʒiij. Ol. Rosar. Hyperic. an. ʒj. Vitell. Ovor. no. ij. Croc. parum, misce.* *Quercetan* does commend this ; *R. Unguent. Basilicon ʒij. Butyr. recent. ʒj. Precipitat. ʒjss. misce.* Or for the same Use take this ; *R. Cer. nov. Resin. Pin. Pic. naval. an. ʒjv. Sep. Hircin. Medul. crur. Vitulin. an. ʒij. Oesyp. humid. ʒj. Ol. Lin. ʒj. liquefactis omnibus & transcolatis, fiat Unguentum, cujus sume ʒij. & bis adde Precipitat. ʒij.* This is accounted a most excellent Medicine in this case. ^{Digestives.} ^{Another.} ^{Another.}

The Fourth Intention is, to mundify, and generate ^{Fourth In-} Flesh where it is lost. And these are performed by Mun- tention, dificatives, Sarcoticks, and Epuloticks. And for this *Unguent. ex Apio, Apostolor. Aegyptiacum*, or Honey of Roses, with Turpentine and Juice of Smallage mixt together, are good. And these and the like are to be used after a Digestion hath appeared, Pain and Inflammation being vanished, and all other Symptoms abated. And for this Use these Medicines are proper. *R. Mel. ʒjv. Farin. Orob. ʒij. Oliban. Ireos, an. ʒj. Succ. Ap. ʒjv. misce.* Another for the same : *R. Mel. ʒv. Farin. Lupinor. Hord. an. ʒss. Myrrh. ʒij. Succ. Ap. Absinth. an. ʒjss. Terebinth. Venet. ʒjss. bulliant Succum cum Farinis, & postea adde Pulveres, & fiat Unguentum.* If a great quantity of Sanies ^{Deterfive.} ^{Another.} ^{Unguent.}

or Excrements does appear in the Wound, you may order this; *R̄ Terebinth. clar. Succ. Ap. an. ʒij. Farin. Orob. ʒj. Ægyptiac. ʒß. plus vel minus*: or this; *R̄ Terebinth. ʒiij. Vitell. Ovor. no. ij. Ægyptiac. ʒj. misce.* To digest and fill up with Flesh, these following are most usefull: as, *R̄ Unguent. Aurei ʒij. Basilic. Fusc. an. ʒj. Terebinth. Mel. Rosar. an. ʒß. Farin. Fabar. ʒij. Pulv. Præcipitat. ʒiij. misce.*

Injection.

An Injection for the same may be this, if the Wound be very hollow; *R̄ Fol. Veronic. Betonic. Scabios. Agrimon. Hyperic. Centaur. Virg. aur. an. m. j. Aristoloch. rotund. Irid. an. ʒj. coquantur in aqua & vino simul mixt. his colatis adde Mel. Rosar. ʒjv. ad ʒbj. Decoct. antescrpt.*

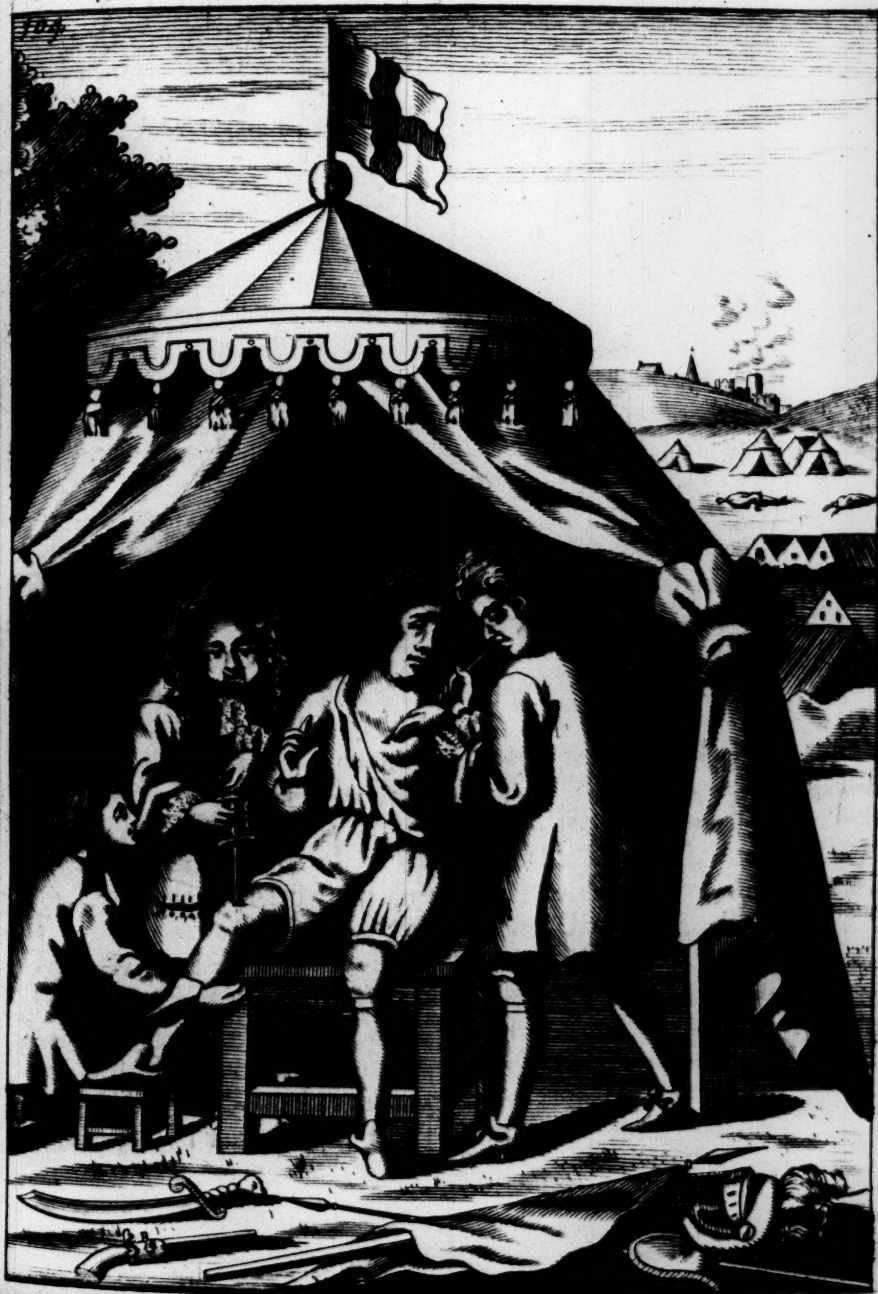
Powder.

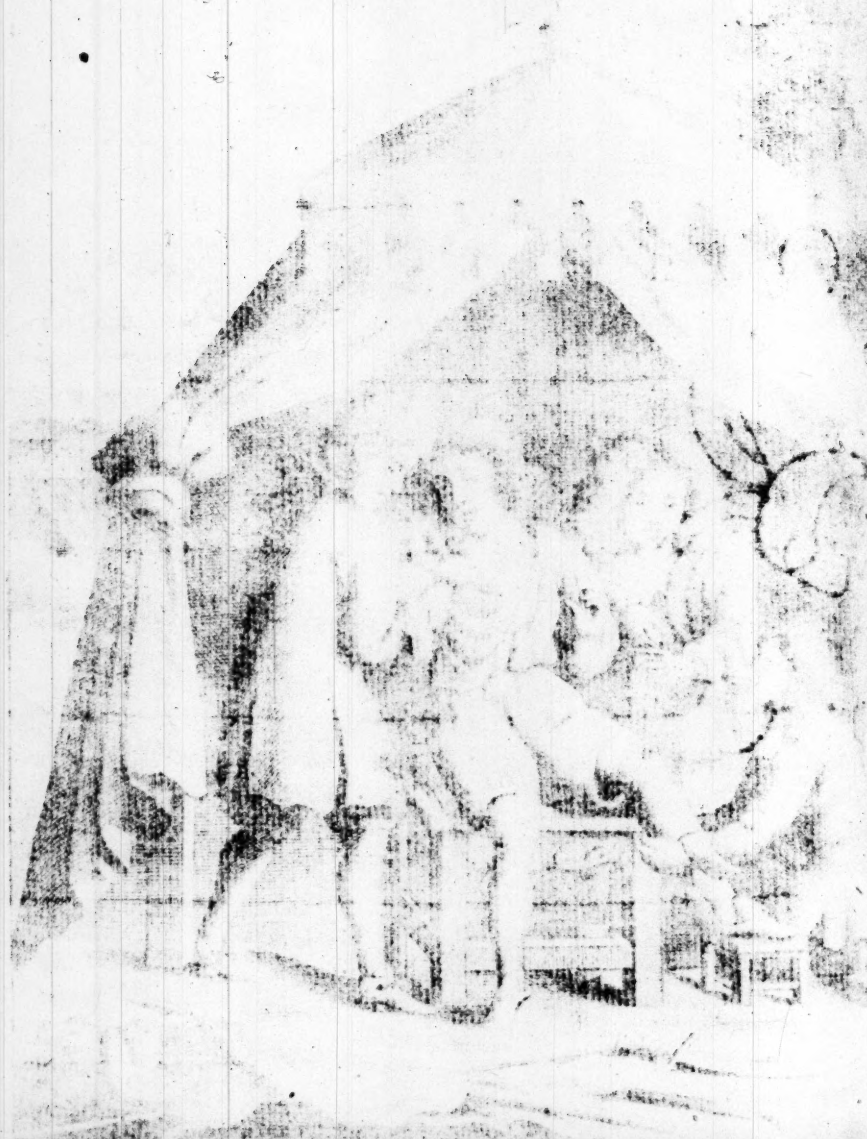
Myrrh. Alo. an. ʒj. Spir. vini ʒjv. The Wound being thus mundified from its Excrements, a filling up with Flesh will easily follow, by shortning your Tents; and when it hath arrived at this, Nature, like a good Nurse, does help forward towards the performing the rest, being assisted by the application of *Basilicon, Fuscum*, or the Use of this Catagmatick Powder: *R̄ Rad. Irid. Aristoloch. rot. Angelic. an. ʒj. Oliban. Mastich. an. ʒij. Croc. ʒj. C.C. ust. & preparat. ʒj. misce, fiat Pulvis.* To this, if you intend to have it more drying, adde *Pulv. Tutth. Cerniss. Litharg. Lap. Calaminar. or Alum. ust.* and the like. The Wound being repleted with Flesh, a Cicatrice is to be ordered, drying up the Superficies of the Flesh, and framing it into the substance of a Skin. For which Use this is much commended: *R̄ Pulv. Calc. testar. Ovor. optimè calcinat. ʒß. Borac. Alum. ust. an. ʒj. Croc. Mart. ʒj. fiat Pulvis.* Or in stead hereof use *Desiccativum rubrum, Diapompholyg. Diapalma*, and the like.

Fifth Intention.

As to the last Intention, which is Correction of Symptoms, I have thereof very much enlarged already; and these, if they do happen, we must endeavour to conquer, and, if possible, prevent them before they arrive. I have already presented such Instruments as are necessary for Extraction of Weapons, and given you both their

Names





Names and Figures, and shall not therefore need to repeat them again. In the adjoyning leaf you have described the Manner of Extracting a Bullet out of a man's Breast. Where we are to observe, if possible, that we gain the true Posture of the Shot's entrance, for the more ready Extraction thereof. We also shew you the true Use of the *Terebellum*, how used in the taking forth of a Bullet from the Thigh, with what Assistents are thereto required: and shall conclude this Discourse of *Gunshot-Wounds* with some Historicall Observations, very usefull and advantageous to the young Chirurgion.

A Merchant was desperately wounded at Sea, and shot ^{History.} into the upper part of his Breast, which passed to the lower part of his *Scapula*. Being hereupon much tormented with Pain, and other evill Accidents, upon viewing thereof an Incision was made for the Exition of the Bullet; the which being extracted, the greatest danger was over. In the whole time of his Cure he took this following Apozeme of *Arcaeus*: *Rx Hord. mund. contus.* ^{Apozeme.} *Passular. enucleat. an. ℥iij. Rad. Bugloss. contus. ℥iij. Liquirit. ras. ℥jβ. Sem. Cumin. ℥ij. Fujuk. n^o. 20. Prunor. n^o. 15. Rad. Petroselin. contus. m. j. coquantur omnia in aqu. fontan. ℥xjv. ad 3. part. consumption. colaturæ adde Pened. ℥iij. Syr. Rosar. de Quinque Radic. an. ℥iij. Sacchar. alb. ℥β. Pulv. Cinnamom. ʒj. fiat Apozema.* To the Wound was applied this Digestive; *Rx Terebinth. Venet.* ^{Digestive.} *lot. in Aqu. vit. ℥jv. Vitell. Ovor. n^o. ij. Ol. Rosar. ℥β. Precipit. preparat. ʒj. Croc. ʒj.* With this being digested, it was thus mundified; *Rx Terebinth. Venet. lot. ℥jv. Mel.* ^{Deterfive.} *Rosar. ʒij. Vitell. Ovor. n^o. ij. Farin. Orob. ℥iij. Pulv. Thur. Mastich. Aloes, an. ʒβ. Peucedan. ʒj. misce.* With these the Cure was perfectly performed.

Another shall be of a Captain, being a man of a Cho- ^{Another.} lerick disposition, and a strong Constitution, who received a Gunshot-wound about the middle of his Thigh which passed through it, not touching the Bone, accom-

Digestive.

Catapl.

Fomentat.

Another
History.

panied with a large Flux of blood, the which being stopped, his whole Thigh was anointed with *Ol. Rosarum*, over which was applied *Emplast. Diapalm. cum succis*. To the Wound was applied this Digestive: *R. Terebinth. lot. ℥j. Ol. Rosar. Unguent. Dialth. de Peto, an. ℥iij. Thur. ʒj. Vitell. Ov. n^o. j. Croc. ʒj.* Over which was applied this Cataplasm: *R. Fol. Violar. m. j. Summitat. Absinth. Rosar. rubr. an. mß. Fl. Cham. Melilot. Scord. an. pug. iij. Farin. Hord. Fabar. an. ʒij. Tritic. ʒj. cum Vini rubri q. s. fiat Catapl. sine addendo Ol. Chamomel. ʒjß. Rosar. ʒvj. Croc. ʒj. misce.* With the Digestive the Tents were armed, and applied untill the Wound was perfectly digested, and the Eschar removed by applying *Unguent. Egyptiac. ʒjß.* And this method was observed untill the seventh day: the Wound being kept from Accidents by ordering a good Diet, and well regulating of the Body. And the Eschar being removed, this following Injection was made use of, both for Mundifying and Incarnating the Part: *R. Hord. bene mund. mß. bulliat in q. s. aqn. ad lbj. cui adde Sanicul. Consolid. Saracen. an. pug. ij. Fl. Hyperic. Rosar. rubr. an. pug. iij. factâ alterâ ebullitione cola, & co-latura adde Syr. de succ. Nicotian. ʒj. Mel. Rosar. Syr. de Ros. sic. an. ʒjß. misce.* The Tents were armed with an Incarnative medicine, and every other day lessened and made shorter, and the Cataplasm left off; but the Parts comforted with Stupes dipt in this following Fomentation: *R. Herb. Absinth. Hyperic. Salv. Betonic. Agrimon. Scabios. Rosar. rubr. Fl. Cham. Melilot. an. mß. coquantur in Vino rubro.* The Wound with these was well consolidated, and perfectly cured.

A Souldier also being shot into his Thigh about its middle, upon search by the Probe for the Bullet, it was found to lodge upon the Thigh-bone. The *Terebellum* being applied before any Tumour appeared, the Instrument catching hold thereof drew it forth; and by following the same method which I have set down

down in the former History, the Patient was perfectly cured.

Hence may the young Chirurgeon collect, that in any Wound made either by Shot, Splinter, or Bullet, if any part thereof do remain in the Wound, this is to be speedily extracted, while the Parts seem as if they were stupefied or benumbed, no Inflammation at present appearing: for should this be deferred for some daies, we may well fear a new Inflammation, Pain, or Hæmorrhagy to supervene. And let him observe (by *Celsus* and *Hippocrates* direction) that he gain the same Posture of the Patient, if possible, as he was in when he received the Wound.

Sometimes Arrows, Splints or Bullets may be left remaining in the Body for some season, without doing much detriment thereto. As *Albucasis* writes of a Woman, that having an Arrow shot near her Belly, and lodged in her Body, she recovered of her Wound, and performed all her functions very readily without any interruption.

Sometimes it hath been seen, after many years being lodged, that they do make a way out for themselves, by framing Abscesses for their Exition: as we may see by these following Histories.

Alfaharavius, *Theoric. Tract. 16. cap. 1.* writes, that he saw a man who had an Arrow shot into his Back, the which after seven years made its way out with odour. *Gilbertus Anglicus*, *lib. 15. Compend.* writes of a man, who having an Arrow shot into his Guts, had it drawn forth with Excrements, and yet he escaped. *Paræus* writes of a Souldier, who received a Gunshot-wound in his Belly, between his Navell and his Loyns, and the Shot remaining therein not extracted, (because, although the greatest care was used, yet the Bullet could not be found out) hence the Patient began to be afflicted with intolerable Pains. At the ninth day he was discharged of his Shot

Several Histories.

Histories.

by Siege, and within three weeks after he became well. We ought to know, as I have already shewn, that if Extraction of Weapons cannot be performed, with ease, that we are not to attempt it, if we judge the Patient may live without it. And therefore should a man have very many Shot lodged in his body, you are never to attempt their Extraction: for how many hundreds are there in health at this day which have them remaining in them? *Fallopins, lib. de Vuln. cap. 22.* writes, that he extracted a Leaden Bullet, which was received in the Groyn, five years after its reception, in which time it had fallen near the Knee, at which place it was drawn forth. Another Example he hath of a Noble Gentlewoman, out of whom was drawn a piece of Iron, which lodged in the Cavity of her *Thorax* for the space of nine months. And to conclude, *Camerarius, cap. 45.* writes of a Country-man, who finding a broken piece of a Knife, did thrust it so forcibly between the right Clavicle into the Breast, that the domestick Chirurgeons could not draw it forth. Within a few daies the man grew well, and the Wound was healed, and he thus lived some years without Pain; save onely a dry Cough perplexed him, and between times a small Pain about the affected Part. After fourteen years he felt a pricking Pain reaching from the hurt place to the *Scapula*, and this for some time together did every day encrease, untill a Tumour appeared, which was afterwards turned into an Abscess, the which being opened, this piece of old Iron was extracted: after which the Wound was consolidated, and the Patient recovered; and the piece of Iron *Camerarius* writes he hath in his Closet. Whence we may learn, if Wounds are inclinable to heal, we are to study their healing without Extraction.

Thus have I run through the generall Symptoms and Discourse of Wounds in Generall. My next Task will be, to usher you in my remaining Discourse, how to deal with

with Particular Wounds : wherein I shall satisfy the ingenious Reader touching every of the Parts as they do arise by Anatomy ; and then, if they be wounded, shew how they are to be cured. .

C H A P. XIX.

The Generall Discourse of Wounds of the Head.

THE Head is such an admirable Syntax of diversity of Works, made and framed out of strange pieces, that he who undertakes to sail through all its Parts, Tempers, and Qualities, had need to be a good Pilot, who besides his knowledge of well Trimming his Vessell, ought to have annexed an exact acquaintance with the Condition, Site, and Connexion of its Parts, to defend him from the Rocks and Shelves of Errour and Ignominy ; and may well account himself happy, if while he endeavours to shun *Scylla*, he falls not upon *Charybdis*, and so miscarries before he arrives at his intended Port or Haven. For here he must expect many Reaches to tack about, before he may be said to make any fresh way, and will be very subject to run aground, unless he keeps Sounding with the Plummet of Reason, and steers by the Compass of Judgment and Experience. And because Man was created for Judgment, Understanding, and Reason's sake, fit to receive the Impresses of sensible things, and to apply himself to the diversity of Objects, he stands much in need of Locall motion. And had this been framed of one con-

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tinued Bone, nothing might he appear more like to, then a Trunk of Wood, or Lump of Clay. Nature therefore, the good and kind Mistress of Form and Beauty, studying how to accomplish him for transaction of the variety of his upper Motions, hath with wonder framed his *Cranium*; it being appointed as the Guard and Defence of the Soul, the Tower and strong Arch of the Brain, the outward Guard, Palace, and Helmet of the Animall Faculties: which we may see framed of variety of Bones, discriminated and distinguished with a strange appearance of Sutures, the which receiving through them the ends of the *Dura Mater*, do form and establish a thin Investure, with which the Skull is cloathed and furnished. By the advantages of which, although one part of the *Cranium* should be fractured, yet it should not pass through the whole. And because this Part of my Book is chiefly designed and dedicated to men of Knowledge, whose Conversation is taken from Learning, and dwells upon the Study of doing publick good and service, whose Heads are furnished with naturall Wit, and endowed with a great quantity of Sense and Reason; not to the Ignorant, who consider little, and understand less; That I may quit this Discourse freely, and free it from off the Stage fairly, before it acteth its Tragick part in the Scene of Wounds, I shall presume to present all the Parts of the Head in their proper order, which does chiefly belong to our present Task: both because the Knowledge of the Parts affected is very necessary for the understanding of the Affects, Presages, and Cure, we being by *Hippocrates* commanded first to gain an exact Knowledge of these; and also in respect of the great Advantage and Light they bring to those who well do understand them. And since I have entered the discourse of this noble and beautifull Subject, I could willingly wish my poor Genius might herein answer a generall expectation: and since this is a difficult Task which I have undertaken, as touching

ching the variety of Wounds both Simple and Compound, be pleased to accept my kind votes, where my abilities may seem wanting, and dress with kindness every lapse of Pen, and deficiency of Judgment. But to quit this, being already assured of having our Sails filled with the gentle Gales of our Friends and all kind Artists, we intend to steer the Vessell of our present Discourse by the Microscope of Anatomy, which will give us the true resemblance of every Part as it lies in its order. In which place we first meet with a *Membrana Carnosa*, or Hairy Scalp; under it planted two thin and membranous Coats; and then shall we arrive at the *Cranium* it self.

C H A P. XX.

Of the Hairy Scalp, and Pericrane.

AND first, as touching the Hairy Scalp; here we may find, although the Skin of Man is allowed in all other parts to be very thin, yet upon comparing this of the Head with that of the other Parts, we shall, I say, find it much thicker then that of the *Thorax* or *Abdomen*. And as this is the thickest of the rest, so *Galen* writes, *lib. De Temperament.* it is also by so much the drier, by how much it is the harder. It hath Veins allowed it from the exterior Branch of the externall Jugulars, the which do variously expand themselves on both sides, and are united in the front: and these do bring its nutriment. Arteries also hath it from the exterior Branch of the *Carotides*, derived to the roots of the Ears and Temples: and these do

do bring it its vitall Spirits. It receiveth some ends of Nerves from the first and second Conjugation of the Neck, to give it Sense, having no proper Nerve allowed it, as have other Muscles. Its Use is, as we see, to invest and cover the Skull. If this be onely wounded, this Wound requireth onely Desiccation, as other simple Wounds.

Next come we to the Pericrane; and this is held by some to be as a *Periosteum* to other Bones. This ariseth from severall Proceses of the *Dura Mater*, like thin Ligaments, the which in process of time, by their expansion, do meet with and unite to one another; and these are so firmly tied together that they form this Membrane, which is thin, soft, firm, and endued with an excellent Sense allowed it from the Nerves, dispersed through it to the *Occiput* and Temples. *Lindanus* and some others will have it to arise from the Tendons of the Muscles of the Front, Temples and *Occiput*, being variously expanded over the *Cranium*. To this is generally allowed and granted as annexed a *Periosteum*, being a most thin Membrane, of a quick sense, by the benefit of which the Head is said to feel, its roots being herein implanted. And this is so closely annexed to the *Cranium*, and so exactly on the other side joyned to the Pericrane, that it appears but as one: which made *Fallopins* mistake, when he thought that onely one Pericrane covered the *Cranium*: but upon a curious search you will find it double, investing the Head. To these Exterieur Membranes the blood is conveyed for their nutrition from the small Ramifications of the outward Jugulars, and the Spirits which they receive they have from the externall Branch of the Carotidall Arteries.

Three things
worthy note

These being wounded are thus to be treated: because they adhere closely to the *Cranium*, being divided or lacerated, the Skull it self hereby must suffer detriment in some measure; and in this case the *Cranium* is to be deraded.

Secondly,

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Secondly, the Pericrane being incised, the Bone is made bare, and may speedily be altered by the air, and therefore to be suspected. Thirdly, if the Bone be not hereupon rased, no good Flesh can be made to generate, or adhere, the which upon its deraſion does speedily grow: for thus the mouths of the ſmall Veſſells are opened, and the Blood which iſſueth thence is a very proper Inſtrument to ſet forward the Cure, by being readily brought to Suppuration for the generation of Fleſh.

In Simple Wounds of the Head, we may cure with Ca- Cure.
tagmatick and Cephalick Medicines, being by *Hippocrates* adviſed to apply no moiſt Medicines here; but rather, by how much the Skull and its parts are drier then others, by ſo much are we directed to uſe a more drying method. The moſt proper Medicines here to be uſed are to be of Deterſive, Digestive and Drying Qualities. Of this ſort may be reckoned Myrrh, Aloes, Ireos, Gentian, Frankincenſe, Comfrey, Powder of red Roſes, Maſtick, *Sarcocolla*, Dragons blood, Bolearmeniack, and the like: and of theſe, or any of them, may be made Powders which are to be ſprinkled into Wounds. Wine alſo for of Wine in Wounds is an excellent Medicine, as *Galen, lib. 3. Method. cap. 4.* writes. And as a Wound does chiefly require Drying medicines, Black wine for this purpoſe is a moſt excellent Receipt; for it dries both of it ſelf and *per accidens*, and of its own naturall quality does dry up by Repulſion: and the Humours being repelled, the Part affected is half cured. And whereas alſo a Simple Wound does require Agglutination, Wine for this alſo is the beſt *Κολλητικόν*, for by its Aſtringency it does joyn and unite the diſjoyned Parts. And if you be to procure a new Fleſh, here firſt procure a good Diſteſtion, either with *Reſina Terebinth. ʒij. Vitell. Ov. n^o. j. miſce*; or in Winter-time with this, *R Terebinth. Venet. ʒvj. Ol. Hyperic. ʒiiij. Pulv. Thur. ʒj. Vitell. Ov. n^o. j.* The Matter being diſteſted, mundify it, by adding to ſome of the former ſome Honey

of Roses; then fill up with Flesh by *Basilicon*, *Limentum Arcaei*, and the like, and skin it with *Desiccativum rubrum*.

C H A P. XXI.

Of the Head it self, and of its Sutures.

The Temper
of Bones.

WE come next to the *Cranium* it self; where we may find with what Art it is made and contrived. It is made of severall Bones, as you shall see expressed in the next Chapter. The Greek word for Bone is *ὄστέον*, *quasi* *σπερόν*, *ab adjuncto proprio*; or *πᾶσι τὸ ἰσαῖον*, *ab officio*. I shall pretermitt the generall discourse of other Bones, my present Task confining me to the Head. And here may we consider of their Temper. For in Children we shall daily find in their *primo Intuitu*, these are more cartilaginous then boney, and it is onely time and age that gives and bequeaths them their solidness and driness: and although they may come under the name of Simple Parts, having no proper Figure allowed them, as have the Organicks; yet consider the rare Use appointed them, their particular Shapes and Forms; and in these also, were not a certain Articulation and Commissure granted them, all Animall motion must necessarily perish. Some of these we meet with accompanied with Protuberancies; others are like Valleys, giving way and shrowded under them: and hence do they assume their variety of names. And here also may we see how Nature, the rare Mistress of Curiosity and Art, endeavoureth to keep this Fabrick entire

entire and trim, who, by her kind Invention and curious Cunning, hath to these hard Substances added a middle matter, both for their better motion, and action. And since also this Queen of Order and Form hath granted Man the Divine sparks of Reason and Action, and allowed him the Majesty of Government, she hath not narrowly confined his Animall faculties to a strict Room, but hath allotted him a large Compass to exercise the same; and to guard these hath appointed this *Cranium*, as their best defence and security: and this brings me to the Discourse it self. And because Infants and young Babes, who have not arrived at a good age, cannot be granted to have in them a true and just Symmetry and Proportion of Bones, these I at present pretermit, and shall onely treat of such who have gained these.

And here we do grant, and generally allow, and account that the Head, which is set and fixed upon the *Vertebra* of the Neck, does divide it self into a *Cranium* and a Face; the Head being that Part which containeth the Brain, as we have already shewn. It is called *Cranium* or *κεφαλη*, *quasi* *κεφαλαιον*. *Galea*. As touching its Figure and Use, more afterwards. In young people it is seen to consist of fourteen Bones, some of which are particularly proper to it, others common. The proper are the Frontall bone, two of the *Sinciput*, one of the *Occiput*, two Temple-bones, in each Ear planted, three Bones named *Incus*, *Stapes*, *Malleus*. The common are, *Os Cuneiforme*, and *Spongiosum*, and two of the Mandibles, besides the Teeth. But to pass these at present, we shall particularly treat of those of the Skull, which are properly thereto belonging, and its Sutures. And here, as the Brain is the most noble Vessell of all others in the Body, Nature hath placed this on the Top, being as the Prince of the rest, and covered it with a Skull, for keeping in its own dominion the Seat of Reason, the Treasure of Judgment, the Register of Memory, the Shop of Sense

As touching
the Head.

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and Motion, and the Royall Order of Contrivance and Execution. This being planted as the Angelicall part of the World, having allowed it Reason to invent, Memory to retain, Judgment to execute, and Counsell to advise. Neither hath she framed these alone with Curiosity; but viewing its Front and exterior Vesture, we must grant that she hath so wonderfully lockt up this Treasury under the particular Keys of her Connexions, that it is past the proudest Judgments of men to frame any one thing to compare with it. And considering its Sphæricall Figure, and the Connexion of parts, it might well make poor Man fall into an humble adoration of his Maker, who hath thus guarded this Treasury, which contains in it the whole Life, Sense, and Reason of mankind. It is not made of one Bone, but framed of many; which may be accounted an admirable piece of Contrivance: and so strangely fashioned, that no other Part of the Body dares compare with it.

Its Use.

And that it may not glory or boast of its fair and strong Structure; embracing onely the name of a Helmet of defence, you may find that it is allowed a proper Office granted it by the Divine Artificer. For you may see it ordained as a strong foundation for the maintaining, keeping and propagating the interest and priviledges of other Bodies, planted both in it, and under it. Thus the Brain, by the benefit of its Sutures, tying its Membranes to this Skull, is kept in a fair *Æquilibrium*: and had it not been thus fashioned, those frequent Concussions or violent Motions occasioned by jumpings or leapings would herein soon create a great disturbance.

Of the Sutures, and their Uses.

The Sutures also are of much benefit to the Brain: for as it is placed in the upper house, many Fumes and Vapours do ascend hither from the Kitchen of the Body, which are not speedily to be dispatched by these. What an ill condition are those poor people in, what storms of troubles and tempests of distempers are such people assailed

ted with, who have these wanting in them? Hence is it, that those that want these are so frequently accompanied with Pains of the Head, and other Perplexities; which trouble not such as have these expulsive Passages. Another benefit hereof is, that one of these being obstructed, the other do supply its place: and though in this case it is not capable to give so quick a dispatch, yet by degrees it performeth its office very promptly.

The Substance of the Skull does vary much in respect of age, being in an infant Membranous, and in one of its Sub- stance. It hath not a like Figure in all men, containing in it both the *Cerebrum* and *Cerebellum*. And this variety or dissimilitude is not so much inconsistent with the Eyes, Nose, Ears, and the lineaments of the Face, as in the Bones and Sutures. And the cause hereof is generally referred to the strength or weakness of the Formative faculty, plenty or scarcity of Matter, or its goodness or illness, as *Galen* declares.

Hippocrates does set down four Figures of the Head; two of which he saith are preternaturall. For in one hereof there is found no Prominency in the *Occiput*, and then there remain two Sutures, the Coronall, and Right; the *Lambdoidall* vanishing. In the other there is no Projecture about the Front, and then onely these appear, *viz.* the *Lambdoides*, and *Recta*; and the Coronall is extinct. And these two Figures in their Sutures do form the Letter T. The third is naturall, and is of a Sphæricall Roundness, carrying with it the naturall *Idea* and Resemblance of the Head: but this being depressed, it expresseth an antierour and posterour prominent part; and being on either side depressed, these three Sutures do remain in the form and constitution of the Head, (*viz.*) *Coronalis*, *Recta*, *Lambdoides*, and being placed together exactly do make H. The fourth Figure is, when either Prominency is lost, which is contrary to the naturall figure

As touching
its Sub-
stance.
Its Figure.

Four Figures
of the Head
set down by
Hippocrates.

gure of the Head ; then the Sutures do thus appear, X, and the Head is very round and sphaerical.

Its Superficies.

The *Cranium* is light both outwards and inwards, that it may neither seem troublesome to the Pericrane, nor *Dura Mater*. It hath and must have allowed it its Inequalities, framed according to the bodies of the two Brains. It is framed of two Bones, thin, but hard, the one inward, the other outward, not much unressembling a Pumice-stone : and these by Anatomists are called *Lamina Calvariae*, or the two Tables of the Skull ; the outward hereof being more thick and hard, the inward more thin and soft : and hence is it, that the outward, by stout and hard blows being given it, suffers not much ; whilst the inward may be rent and divided. And because also man's Head is very various, as touching both the number and position of its Bones, in their thickness and thinness, hardness and softness, density and rarity, equality and inequality ; and because of the Veins and Arteries allowed them, for conveying their nutriment and sustenance, passing between these ; I shall afterwards enlarge on these for our better knowledge, and at present shut up this Chapter with a brief discourse of the Sutures.

The true definition of Sutures, and why so called.

Of their Differences.

Three proper Sutures.

1. Coronalis.

A Suture therefore is the perfect draught and resemblance of things sown together. This I call a Composition, which may thus be understood. For that it is not *ἑνωσις*, an Union, but a certain Articulation made *κατὰ ἀρσενον*, is thus best explained, in that it taketh its proper name from the resemblance of Cloath which is sown together. And of these Sutures there are two kinds ; the one proper to the Head, the other common to it with the upper Jaw and *Os Cuneiforme*. These proper are either true, or false ; the true being in number three, the false five ; the first being single, the other double. The first are the Coronall, Sagittall, and Lambdoidall Sutures ; the latter having Companions annexed to them, as one on the right side, another on the left. The First of these

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is called *Στεφανιαία* *Coronalis*, from the Ancients, whose custome was to wear Garlands in that place. Our persons of Honour at this day here do place their hairy Towers. And this does distinguish the Frontall bone from that of the *Sinciput*. The Second is called *Lambdaides*, from the resemblance it hath with the Greek Λ . It is also called the Occipitall Suture, from its site, it being placed in the back-part of the Head, separating the Occipitall bone from the Sincipitall bone. This Suture is seen sometimes double, containing in its middle a Bone with three corners, from whence it is called *Triangularis*. The *Coronalis* does resemble a Semicircle, crossing the Front as far as the Scaly Agglutinations, and does there separate the Frontall bones from those of the *Sinciput*. *Sagittalis*, the Third Suture, is placed between these, and is a direct Suture, and divideth the Bones of the *Sinciput*, sometimes descending even to the Nose. There are besides these four Bastard Sutures, but not so conspicuous as the former. The first two are planted above the Ears, one on either side, above the *Petrosa*; these rather deserve to be nominated Scaly Agglutinations: the other two belonging to the *Os Sphenoides*, on its antierior and posterior part. Besides these there are five Commissures belonging to the *Cranium*, and to the upper Mandible, by some called Harmoniall Sutures. The first is made in the right Orbit of the Eye, proceeding outwardly from the end of the fifth Suture, and is common to the first Bone of the Front, and upper Mandible. The second appears in the lower and laterall seat of the Eye. The third ascends outwards to the uppermost part of the Nose obliquely from the inward side of the Eye. The fourth proceeds obliquely through the middle of the Jugal bone, and joyns to the Temporall bone. The fifth is in the breadth of the Nose, and in the amplitude of the Nostrills, and the bridge of the Nose. All these are ordained by Nature to be as Vents and Discharges to send forth and dispatch both.

2. *Lambdaides*.

3. *Sagittalis*.

Four Bastard Sutures.

Five Commissures.

Their Uses.

Of Wounds of the Head.

Three Reasons not to make any Incision into the Sutures, given by Hippocrates.

both Fumes, Vapours, and Excrements : framed also for the ingress and egress of the Vessels, which are procured for the nourishing of the Brain. And hence may we well admire the true Judgment of *Hippocrates*, who writes, that such people who have most Sutures in their Head are most healthfull. We are advised by him also, in Sutures not to make any Incision, for these three Reasons. 1. Because they are weak and easily perforated by the Saw, and thus the Brain and its Membranes hurt. 2. Because through these Sutures both the Veins and Arteries do pass, and these being touched with any iron Instrument, it may perhaps or by chance reach the Membranes. 3. Because Callosities being here contracted they do much hinder Transpiration.

C H A P. XXII.

Of the Cranium and its Bones.

Six proper Bones.

Frontall.

THE Bones of the Head are of two sorts, some peculiarly proper to the *Cranium*, others chiefly belonging to the upper Jaw. Those properly belonging to the Skull are Six.

Of which the first is called *Os Frontis*, by some *Os Puppis*, having allowed it a vast magnitude, in its upper part, being in Children of a soft substance and double. It constituteth the whole Front, and the more elate part of the Eye-lids. Its figure is semicircular. In Children it appears double, but in Aged people this is worn into one: and is circumscribed with a transverse Suture. In this Bone

is to be observed a large Cavity, being between either side of the Nose, from whence are expanded two Cavities to the Cavity of the Nose.

The Bones of the *Sinciput* or *Vertex* are placed in the upper part of the Head, square in figure, onely somewhat extended in length, not plain, but concave, so framed by reason of the sphaerical figure of the Head to which they are accommodated. They are joyned to the forward lines of the Frontall bone, Coronall Suture, and to the back-part of the Occipitall bone, and Lambdoidall Suture. Their substance being in young people hard, but softer then other Bones and thinner, both for the more speedy and easy transition of Vapours: and hence were they made with many small Cavities on the inside, with many Inscriptions where the Vessells run: and these especially in young Children, by reason of their great plenty of moisture, are rather soft and membranous: and as they creep up to a riper age, these also do exceed both in their driness and hardness: and, as *Pliny* saith, these seldome begin to harden untill Children do begin to speak. The outward Superficies is thin and slender, inwardly asperate and rough, through whose passages some Ramifications of the Jugular veins are inserted. And hence may the young Chirurgeon learn, that he do not lacerate the Veins when he useth the Trapan or Trafine. These Bones were framed for discharge of viscous and tough Humours, which are generally redundant in Infants Brains. Two Sincipitalls.

By *Galen* it is called *Os Occipitis*, τὸ καὶ ἰνὸν ὀστέον, *Os Occipitis*. διὰ τὸ ἰνῶδες εἶναι, quod ibi fibrae nervae oriantur. By the *Arabians* it is held to be the seat of Memory, and does shut up and close the back-part of the Head. It is also called *Basilare*, and *Os Pyxidis*, or the Nowl-bone, constituting the posteriour and lower part of the Head. It hath a Triangular figure, inwardly concave, outwardly convex. It is of a hard, thick and dense substance.

stance, stronger then any of the other Bones of the *Cranium*, the better and more ready to defend any Back-blows, and such Hurts as may happen in the back-part of the Head. It is connexed to the Bones of the *Sinciput* and Temples, and sometimes to the *Sphenoides*. It hath two large Processes at the side of the Medullary passage, which do receive the *Cerebellum*, planted at the *Basis* thereof, which are articulated to the first *Vertebra* of the Neck, and do serve for the motion of the Head, and for its flexion and extention. It hath a round Cavity placed between these two Protuberancies in its *Basis*, through which the *Medulla* does descend from the Head to the Back. This is an excellent guard against all injuries and assaults which may be inflicted on the back-part of the Head. And it is a principall Maxime, in Wounds of the Head, to prohibit Inflammation: which is chiefly occasioned by the Vessells being lacerated, and the Bloud thence issuing, and there corrupting, by whose corruption the Parts also are corrupted; and hence cometh Pain, and a superfluous Heat, out of which two is framed Inflammation: and therefore we are to procure a speedy Suppuration. And Wounds happening in these Parts are of greater danger then those happening on the Fore-parts, and more ready to putrefy in the Summer then in the Winter, the Cold not so readily being capable to cause Putrefaction. Wherefore the young Chirurgion ought to have regard to these Observations.

Note.

Two Temporal Bones.

But to the next, which are the Temporall Bones, by some called the Temple Bones, by the *Greeks* named *νεγρόπων ὀστέα*, being received on either side of the Head, or possessing the laterall Region thereof: these are the smallest of all the Bones of the Head. In the upper part they are almost semicircular; but in their lower parts, by reason of their inequall Asperities and Extuberancies, with their Processes subsistent with their Cavities, they do carry a manifold figure and form. There are two Cavities.

Cavities worthy our ²observation in this Bone. The greater is accompanied with a Cartilage, between the Auditory passage, and the Process of the Jugal bone, the which does receive the head of the lower Mandible. The inward is less, and common to the Occipital bone, seated at the same Process backwards. And in this Part ^{Observat.} also it is worthy observation, that the Muscles peculiarly appropriated to these Bones are covered with the Pericrane, and the subjacent Bones are also destitute thereof; no other part of the Body being thus strangely framed.

The chief of the Bones I have already named; the other two are *Sphenoides*, and *Ethmoides*. The former ^{Os Cunei-} Bone is by the *Greeks* called *σφηνοειδής*, or the Wedge-^{forme.} bone, which it much resembleth. It obtains a various figure; and by some it is called *Os Basilare*. In Infants it consisteth of many Bones united together by a Cartilage, and these generally are in them allowed to be four. The first thereof does scarce recede the latitude of a finger from the fore-parts of the *Occiput*. The second comprehends the *Sella Equina*, and the Processes appointed for the Visive nerves. The third and fourth are plain Processes. In Children if this Bone be carefully examined, you will find it consist of three Bones; one constituting its *Basis*, which does frame the *Sella Equina*, and does expand it self forwards towards the sides like two Wings; and the other like lesser joyned to these: all which in process do run into one. It is seated in the middle of the Head, encompassing and enwrapping the proper Bones of the *Cranium*, and sometimes the Bones of the upper Mandible every way, thereto annexed by the mendose Sutures, the which are altogether obliterated by age and growth. It is allowed both outward and inward Processes: four outward, two placed forwards near the seventh of the Bones of the Nostrills and Palate, in which cohering with the upper Mandible,

Of Wounds of the Head.

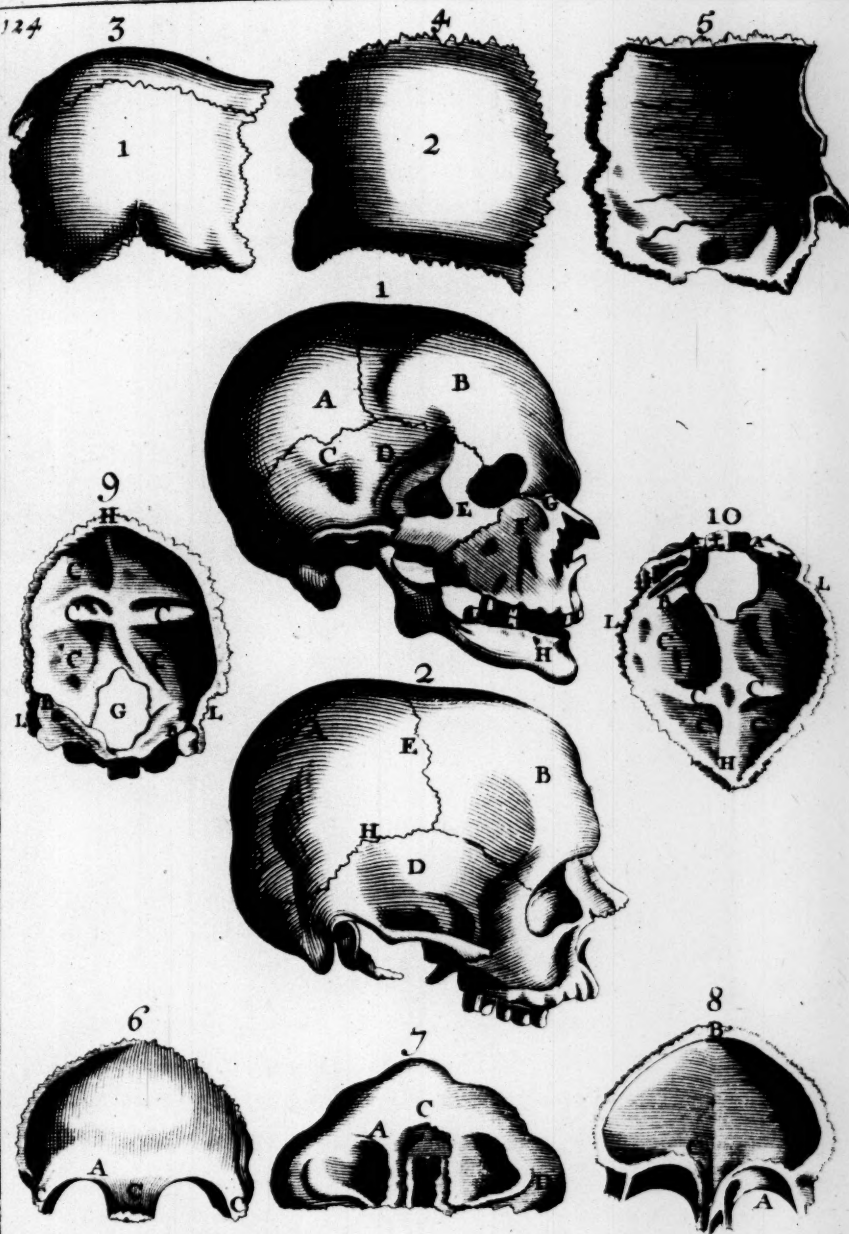
and from their resemblance called *Aliformes*; two also appearing backwards, protended with a double mitre towards the *Styloides*. Such as have a further desire hereof, let them frequent Anatomical Lectures, and read Anatomical Authours, and they will find their time will not be spent in idleness or frivolously.

Os Ethmoides.

The last is called *Os Ethmoides*, *Spongiosum*, and *Cribriformum*, somewhat resembling a Sponge, and planted in the middle *Basis* of the Front, sited in the convex part, between either Eye, to the second of the Mandibles, and *Sphenoides*, *per Harmoniam*; the which age does also wear out. This is boared with very many small Cavities, much like a Sieve, amongst which those are the largest which are nighest the *Crista Galli*. It is covered with the *Dura Meninx*, the which in this part is very porous and perviated with many *Foraminula's*, through which does issue out that tough and viscous Phlegm which does descend from the Ventricles of the Brain. And as you see the Parts of this Bone are various, so also are its Uses. One Part maketh way for Air and Odour, for the refreshing of the Brain, this being breathed into it for the generation of animall Spiritus. And hence is it, that those that be troubled with a *Coryza* (the which we commonly call a Pose) cannot smell, because these Perforations are stopt up with Rheum. *Galen* and *Laurentius* do adde this farther Use thereof, that by these Perforations, when need requireth, a plenty of Excrements may be speedily and together discharged. But others on the contrary do write, that nothing can this way be brought to the Brain, because these spongius Fleshes are so placed, that nothing can penetrate through them from the Nostrills to these little Pipes, much less be conveyed this way to the Brain it self.

Its Uses.

Thus have I given you an account of all the proper Bones of the *Cranium*: I shall here present you with a Figure of the Head, how it may variously be wounded;
and



and on the other side you may see a Scheme of all these Bones, first as they are placed in their naturall Figures with their Sutures, and then may you view them apart with their names under them. This I have thus delineated for the better satisfaction of the young Chirurgeon. In the First you have the Figure of the whole Head with its Face, known by these Letters, A. B. C. D. E. F. G. H. In the Second, the Bones of the Vertex with the rest, thus also noted, A. B. C. D. E. F. G. H.

The First Figure.

- A. *The Bone of the Vertex.*
- B. *The Frontall Bone.*
- C. *The Temporall Bone.*
- D. *Os Sphenoides, or the Wedge-Bone.*
- E. *The first of the Bones of the Mandible.*
- F. *The second of them.*
- G. *The third of them.*
- H. *The Mandible it self.*

The Second Figure.

- A. *The Bones of the Vertex.*
- B. *The Frontall Bone.*
- C. *The Occipitall Bone.*
- D. *The Temple Bones.*
- E. *The Coronary Suture.*
- F. *The Sagittall Suture.*
- G. *The Lambdoidall Suture.*
- H. *The Squamosse Suture of the Temples.*

The Third, Fourth, and Fifth Figures, shewing,

1. *The Bones of the Vertex joyned together by the Sagittall Suture.*
2. *The right Bone of the Vertex from its outward face.*
3. *The left Bone of the Vertex inwards.*

The Sixth, Seventh, and Eighth Figures represent the Frontall Bone, in its site, outwards, and upwards, and inwards.

- A. *A Cavity which penetrates from the Cavity of the Bone through the Frontall Bone.*
- B. *The Back-part which is committed with the Bones of the Vertex.*

R 3

C. The

C. The Fore-part committed with the Bones of the Mandibles.

D. The Sides by which it is joyned with the Sphenoides; and the two Occipitalls by themselves, at the Ninth and Tenth Figures.

The Ninth and Tenth Figures shew all the Bones of the Occiput, thus marked.

A A. The heads by which they are connexed to the first Vertebra.

B B. The Cavity in which the duplicated Membrane of the Brain makes the Front.

C C. A hollow Insculpture framed for the Vessells and Eminencies of the Brain.

D D. The common Cavity of the six Pair of Nerves

of the Brain, with the Temporall Bones, through which doth pass the greater Branch of the inward Jugular Vein.

E E. The Cavity of the seventh Pair of the Nerves of the Brain.

F F. The small Cavity of either side of the great Cavity, which ariseth from the Originall of the Dura Mater, and penetrates to the Cavity of the Neck.

G G. The Cavity through which does pass the Spina medullaris, and the first Artery enters the Brain.

H. The upper part of the Occipitall Bone, committed with the Bones of the Vertex.

I. The lower part committed with Os Sphenoides.

L L. The Sides by which it is joyned with the Temporall Bones.

Having thus presented you with the Scheme and Figure of the Head, and of the variety of its Bones, their Nature, Site, Temper, and Connexions, with their Uses, and the like; we arrive now at the discourse of Wounds in generall, where we may meet both with Simple, and Compound: the first of which I have already passed; the latter remains. And herein also are we advised by wise Hippocrates, the Father and Patron of Reason

son and Experience, that we do well understand the Disease, and the Præface thereof, before we undertake the Cure: and this more particularly in Wounds of the Head; where no evident Signs are made apparent, in the first daies, of danger; which whilst they appear under mean shapes to the ignorant Chirurgeon and as Trifles, are speedily undertaken by him; but within few daies they procure such a Troup of bad Symptoms, as oft hurry the poor Patient and dispatch him into another world. And although of the Brain and Heart the Heart is counted the most noble; yet its *Thorax* being wounded, by which it is guarded and defended, even into the Cavity thereof, the Heart it self being kept inviolable, or not touched therewith, the Patient thus wounded, if skilfully dealt with, is scarce seen to come under the verge of danger: whereas we see by daily experience, Wounds happening in the Head, although the Brain be not touched, or its Membranes, do very often occasion Death. And hence is it, that he in the beginning of his Book *De Vulnerib. Capit.* does advise the Chirurgeon, not to contemn or scorn the least Wound happening in the Head; but advisedly to undertake it with Art; lest by an inconsiderate dressing, (as too oft happens by the illiterate Practiser) for want of well expurging the Matter which is inwardly lodged, there follow a sordid Ulcer. And in many cases the best of Chirurgeons, without a due respect and inquiry, may herein fail. And because the differences of Wounds are generally taken from their Causes, being either Pungent, Contusing, Lacerating, or Incising; every of these have their proper Instruments to perform or effect their designs: as Swords and Rapiers to prick or stab; obtuse Instruments, as a Stone, Club, Fall from a high place, and the like, for lacerating; and for incising, Knives, Daggers, Faulchions and the like Instruments. But because you may in very many Authours meet with Discourses hereof, as
in

in *Andr. à Cruic. Cæsar. Marcell. Read*, and severall others, I pretermit them, and come to the Signs of Wounds of the Head in generall.

C H A P. XXIII.

Of the Generall Signs of Wounds of the Head.

WE are by *Hippocrates* Authority not to depend or build our faith upon one Sign in Wounds of the Head, nor yet to be satisfied with a few, in cases of great danger; for it is these onely which do bring the Chirurgeon into the knowledge and acquaintance of his businels, and direct him the more readily to execute his Office and shew his Art.

Incision a
Fracture.

And because Incision is a Solution of Continuity happening in the *Cranium* by some incising Instrument, so far as it hath touched the Bone, it ought to be reckoned a Fracture. But this taketh its name from its Cause.

Perforation.

Perforation is also made by a Sword, Arrow, or the like; and this is called a Solution of Continuity: and this draws its name from its Cause also.

Generall
Signs of a
Compound
Fracture.

If Dimness of sight or a Cloudiness appears, *Vertigo*, Vomiting, Bleeding, at nose, mouth, and ears, the Patient mute, and suddenly falling to the ground, and hence issue Fever, Convulsion and *Delirium*, these are generall Signs of a Compound Fracture.

Wounds

Wounds of the Head received in a distempered person, or such a man who is of a Cacochymick body, are the hardest to cure, the Bloud being altogether improper for uniting of Parts. Wounds in a Cacochymick body.

Wounds in the Heads of Children oftentimes prove unhappy, they being of a hot and moist Constitution, and this not so apt for the admittance of Putrefaction. Wounds in Children.

In Summer-time the Patient lives a shorter time then in the Winter, for in this time the unnaturall Heat is not procured for Putrefaction, as *Hippocrates* observes. Wounds in Times.

Contused Wounds are more slowly cured then Incised Wounds, for these require a greater time for Suppuration, as *Hippocrates* sets down, *lib. De Vulner. Cap. 11.* Contused Wounds.

If a Tumour accompanieth a Wound in the Head, and shews well, but suddenly vanisheth without discharge of the Matter which was contained in this Bulk, it is of ill consequence. Tumour in Wounds.

If a Fever happens before the seventh day, it is of less danger then appearing after, this generally being accounted the time by Masters of Art for the ceasing and abolishment of Accidents. Fever upon a Wound.

Hippocrates writes, it is an ill sign, if the Lips of the Wound do look livid, for this is a great sign of the Decay of naturall Heat, as he hath it *Sec. 7.* The Lips of Wounds livid.

Aph. 2.

Wounds happening in the fore-part of the Head are more dangerous then those of the hinder-part, because as herein is contained the greater quantity of Brain, so also are its parts both thinner and lighter: and hence is it, that such as receive Wounds in these parts do sooner die then such as do receive them in the hinder part thereof, because of its Sutures, as *Hippocrates* also writes *cap. 7. and 8. lib. de Vuln. Cap.* Wounds in the fore-part, and in the hinder-part of the Head.

Of Wounds of the Head.

Wounds of
the Sutures.

Wounds in the Sutures are very dangerous, as I have already shewn you, for three especiall reasons already prescribed, as *Hippocrates* writes *lib. de Vuln. Capit.*

Wounds of
the Temples.

The Temples being wounded are very dangerous; the Articulation of the lower Mandible upon eating or drinking does hinder Union, herein also being planted the Auditory passages, and the Jugular veins and Soporall Arteries are here much distributed, and the like, as *Fallopins* writes in *Hippocrat. lib. de Cap. Vulnerib. cap. 9.*

Ill Sym-
ptoms in
Wounds.

Blackness in the neighbouring Parts appearing near the Wound, Convulsion, Palsey, Ravings, and a Chilliness over the Body, are here very ill Symptoms.

Good Signs
in Wounds.

These are reputed good Signs in Wounds of the Head, when the Patient hath no Fever, keeps his Senses, sleeps well, his Body is soluble, the Wound looketh well, and yields a laudable Matter.

In Com-
pound
Wounds.

In Compound Wounds with a Fracture, expect not to have the danger all past untill the hundred daies be expired.

Wounds to
be searched
by the
Probe.

Hippocrates does advise, if we cannot find out Fractures joyned with Wounds by the Finger, to use the Probe: and if hereby you meet with any Asperity or Inequality in the Skull, you are to suspect a Fracture. Yet he farther adds, that in all Parts this is not to be credited; for if the Sutures be wounded, these may deceive you, as he writes, *Sect. 6. de Vulnerib. Cap.*

The generall
Symptoms
attending
Compound
Wounds.

Hippocrates also, *lib. de Vulnerib. Capit. cap. 18.* writes, that these Symptoms do generally attend Compound Wounds; viz. a Singing noise in the ears upon the receiving the Wound, falling after the blow, *Syncope*, a Dulness and heaviness possessing the Patient after the Wound received, Dazing of the eyes, a Giddiness of the brain, an issuing of Bloud both from the ears, nose, eyes, and mouth, Vomiting, and the like. Of which

which expect their Causes and Reasons in the Presages.

And to these are joyned and added by him, *cap.* Other Sym-
45. *de Vulnerib. Capit.* a constant Pain of the wounded *proms.*
Part, the Patient's mind much inclining his Hand to
lie upon it, a vomiting of Choler, with Fever, Con-
vulsion, Palsey, *Delirium*, Dulness of speech, Deafness,
loss of Memory, Judgment, and Understanding.

And after all these, as he farther prescribes, if the *Other Signs*
Hair be cut asunder and stick up in the Wound, it is a
perfect Sign of a Fracture *in Cranio, Hippoc. c. 18. lib.*
de Vulnerib. Cap.

CHAP. XXIV.

Of the Presages of Wounds of the Head.

WE arrive now at the laudable part of practice,
wherein is shewn the excellency or weakness
of the Chirurgeon : and therefore let all young Stu-
dents in Chirurgery know, they ought to be very
cautious in their Presages, for the least hurt here is
not void of suspicion. And therefore he who under-
stands aright the Presages of Distempers, may well be
compared to a skilfull Pilot, who can foretell a Storm
before it happens, and hereby can also lessen the dan-
ger which threatens, upon its appearance. Even thus

ought he to be so studious, as to tell the event which is like to ensue upon a Fracture made in the Skull.

1. Wounds therefore are most lethall which happen in the Fore-part of the Head, the Back-part being defended with a thick *Occiput*, a good Safeguard to defend a back-blow; and also because herein lieth the smallest part of the Brain.
2. Wounds of the Head being received in the Winter do suffer the Patient to live longer then those made in the Summer, for herein the native Heat is most copious and strong: and why the naturall Heat is herein more intense, *Galen* sheweth out of *Aristotle*, because by reason of externall Cold it does gather together its Spirits inwards and towards the inward Parts; on the contrary, in Summer the naturall Heat is expanded and exploded to the externall Parts, and is as it were there dissolved and dissipated, the which in Winter is contracted and cohibited.
3. Large and deep Wounds are by *Albucasis* advice not to be relinquished, because sometimes they are seen to be cured beyond hopes, having a respect to their Accidents.
4. Proceed according to Art in all such Wounds as you have any hopes of cure or recovery.
5. If a Patient have received a Fracture in the Skull, pronounce not all danger to be past untill the hundred daies be expired; for many have died about this time, as *Hippocrates* writes, *cap. 48. in lib. de Venerib. Cap.*

If the Wound in the Head accompanied with a Fracture have no fearfull Symptoms goe along with it, yet it is not void of danger.

6.

If a Fever and other bad Symptoms follow a Wound, and the Lips thereof at the second dressing look black or livid, and grow flat, it's a bad Sign.

7.

If in a Wound or Percussion of the Head Stupor and Idleness happen, it is of ill consequence, for none of these appear without hurt of the Brain; and they bring Death, if they be powerfull and great.

8.

The Memory being impaired, the Eyes growing dim, the Tongue failing, the Ears growing deaf, the Patient accompanied with Fever, *Delirium*, his Tongue black, the Wound growing dry or livid, and Convulsion, Palsey, or Apoplexy following, these are the forerunners of Death.

9.

Wounds and Contusions penetrating and not penetrating the *Cranium* without hurt of the Brain, may with care be cured: but the Brain being hurt, it oftentimes proves mortall.

If the Bone do appear black, and this Blackness is not to be removed by the Actual Cautery, this does argue bad Matter to be lodged under the *Cranium*, the which if it corrupteth the Bone upwards, does also corrupt the Membranes inwards, it being more easy to corrupt the Membrane then the Bone: and in this case it is more safe to open untill you come to the Bone, that it may be removed; and so to remove, if possible, the Cause of its Blackness.

10.

11. If the *Cranium* be fractured, the Parts above must suffer Solution of Continuity, except it happens in a Contrafissure or Countercleft.

12. If the Flesh about the fractured Skull appears of a Lead colour, it's ill, as *Hippocrates* writes, *Aphor. 2.*

13. If it appears black and dry, it is a sign of Mortification of the Part.

The differences of the Parts wounded do preface either the escape or death of the party wounded, some of these being strong, others more weak, some of a quick sense, others of a more dull feeling: and this *Hippocrates* sheweth by many Examples, in *lib. de Cap. Vuln. cap. 2.*

14. And as touching the Symptoms of Wounds, he writes them in this order. Whereas Pain is generally occasioned by Solution of Continuity, after this follows Watching, Loss of Appetite, and an Affluxion of Humours; these procure Inflammation, and this entertains Fever, sometimes Convulsions, Gangrene, and Mortification, if not by Art prevented.

15. It is a great sign of Death in an ill-cured Wound of the Head, if a Fever does supervene in Winter before the fourteenth day, or in Summer after the seventh; for it is generally to come at first, or happen in the first daies, brought hither by Pain, Inflammation, or Suppuration.

16. If after the seventh in Summer and fourteenth in Winter a Fever happens upon a Wound of the Head, it behoves the Chirurgeon to be fearfull of his Patient, for
he

he is not void of suspicion of danger; this Fever for the most part being excited by Corruption of the Brain, its Membranes, or *Cranium*.

The Bone of it self being light and equall, but being Carized it appears asperate and rugged. 17.

The Bone appears white, because Inflammation does draw forth the Bloud, just as Fire does the moisture from Wood; the which being altogether extracted, leaveth onely a Cinder, which hath in it a kind of a whitish ashey colour. 18.

In large Wounds of the Head, a peculiar Symptome is Convulsion; and this Spasm being in one part of the Body, does corrupt many. And it is the thoughts of some Authours, that Convulsion is made in the sound Parts by Inanition and penury of Humours and Spirits; whereas in the hurt Part there is felt a most sharp Pain, the Humours thither positing themselves, do gather and unite together, and by this conflux the sound Part is exhausted, and therefore forced to yield to Convulsion. And these Convulsions here happening are a sure sign of Death, sending their ill Matter to the Bone, and a corrupt and malign Vapour from the affected Part into the sound Part. 19.

Wounds in the Temples are most dangerous, they being thin and weak; and because remarkable Veins, Nerves and Arteries border upon them; because also the Pericrane does cover their Muscles. 20.

Thus having for your benefit set down very many ~~Presages~~ and Symptoms which follow Wounds of the Head, chiefly collected from *Hippocrates*, the Father of good Authorities; I shall also leave with you his blessing and

and advice, That in every point of your Art you carry your self wisely, and chiefly in this of Presages: that if you predict according to the event, your Patients may admire and honour you; but unadvisedly to erre herein, you will as readily be accounted amongst the number of fools by them. Of which sort of people I am afraid we have too many at this day in our Nation; and it were to be wished our renowned Art might not be rent into so many pieces by them, and divided into more parts then ever I believe God Almighty intended. But *Vix ea nostra voca. Paulo majora canamus.* The Chaldeans did exceed others in Knowledge, as *Diodorus* does report; their Children learned the Rules of Knowledge and Philosophy in their Infancy from their Parents, and so continued the propagation of the same to their Successours. This I may and must confidently say for the Honour of our Nation, that Chirurgery may boast in this, that it hath very honourable and eminent Patrons scattered about; but these are not very frequent; such Sons of Learning, as well as Art, as can vindicate its Rights and Priviledges. Yet this I must allow, that it is crept into acquaintance with such strange Creatures, and owned in its profession by such mean Spirits, that *Hippocrates* saying may readily be confirmed for a truth, that the Name with the Name is no false Heraldry; but the Name amongst these with the Art is but small and little.

CHAP. XXV.

*Of Incision of the Hairy Scalpe, and
Opening the Skull.*

WE come now to the Operative part of Chirurgery required in the cases of Wounds of the Head; And because the heads of Children are tender, loose, soft, and thin, having in them much blood, not hard, thick, and firm; and because also a more speedy Purulency of matter happens in these more than in such who have arrived at a greater Age and stronger Constitution: These being, like soft Wax, very capable to receive the Impressions which any Instrument may inflict. These Bones also in these young Children, in relation to their plenty of Heat & Moisture allowed them, are very subject to receive Putrefaction. Considering also their Imbecillity and Rareness, with the weight of the instrument hurting, and capable to occasion herein a Wound and Fracture, and how speedily it may communicate its affects hence to the Brain and its Membranes, and where either a Fissure, Collision, or Sedes is here made, how careful ought we to be, and well to consider and cautiously to weigh how we are with these to deal: Some of these in respect of the largeness of the wound, and Concussion of the Brain, do soon and speedily dispatch the Patient of its life. Others not imprinting their Cruel Darts untill the 4th or the 7th day.

Hippocrates like a Wise Judge does pronounce these are Four dangerous Sentences in Wounds of the Head happening in Children or Men: As first, Wounds of the head being neglected, or slenderly examined, do oft-times bring an unexpected Death, there being no good respect or care taken in the right ordering the Body:

T

Thus

Four Kinds of
ill Symptoms
pronounced by
Hippocrates.

Thus by the imploy of ignorant Pretenders to the practice of this Art, too oft are the King's Liege People Cheated of their Lives, by procuring mischiefs to the subjacent Membranes, applying of a *Trepan* to the Sutures, and sharp Medicines hereupon: These being more proper for exciting of pain, and this drawing inflammation with it; who like people half distracted are at their Wits ends, fearing the Coldness of the Air, but not understanding how to temper or correct it, who upon endeavouring to eschew the danger of the one, make nothing to split themselves upon the Rock of Unadvisedness in the other. A Third also *Hippocrates* brings in small and slender Wounds, the which not being at first well treated, prove suspicious beyond the expectation of their narrow Genius; who by ordering their Patients thin Broaths, *Ptisans*, and the like, do give way for their Patients to drink Wine, to eat and drink at pleasure, and if possible to any Exercise, not forbidding Venery, although the greatest enemy to Wounds in the Head, nor prohibiting any passion, all which to a Judicious man appears as idle as any one thing in the World, Knowing that these will create Choler in the body, and raise feuds in the humours, causing that Intemperiety which in time committing and communicating it self to the head, hereby inflameth the Animal spirits. A Fourth may be attributed to such, who are so unhappy as at the first view to pronounce speedy Death, acquainting both Patient and Relations that there are no hopes left either of Cure or Life. And what power; force, and vigour this may have in any man, no Judicious or Ingenious man is ignorant of: For if by *Hippocrates* his Rules and Aphorisme we are Ordered to hope well, and to think the best, and give comfortable assurances to the wounded Patient, this being as an Exact Rule and Maxime as touching Health; so on the Contrary to create Despair, and discompose the Patient with the unhappy thoughts

of

of a suddain Surprizal and a speedy Change, must as consequently make dull and flat the musical strings which are the vigorous and nimble Instruments of Man's Life, Sense, and Motion. And to conclude this Discourse, how oft have we seen men dye of small and slight Wounds in their Heads, not by reason of the Brain being hurt, or the Skull suffering a fracture, or the like, but chiefly by hidden causes happening either by Accident or Nature, having their Bodies overcharged with bad humours, macerated by Venery, swelled up by Dropsies, and according to other inward Dispositions and Tempers: Several also are the Intentions of divers Authors as touching Solution of Continuity in the Head, but these do not make much for the relief of the Patient.

But to proceed; *Franciscus Arcaus* adviseth us, That when a Wound happeneth with a Fracture in Childrens heads, without any bad Symptome attending it, not to remove any Bone if the parts of it cleave together; but onely to be anointed with his Liniment which he hath Christned by his own name, by having some small Feathers dipt therein, and so applying it warm to the part affected. But if any bad Symptome appear, as Convulsion, Vomiting of Choler, Fever, or Palsie, and the like, then to dilate the Skull as *Hippocrates* does order, *Cap. 47. lib. de cap. Vulnerib.* And being once opened, they are to be drest as we drest other men. But let this serve for Advice. We come next to the person affected, who is the Object of our present Discourse, in whom both occasion and necessity commands the Use of the Instrument. And here are we to consider, that we make an Artificial separation of the soft parts about the Skull, having hereby a more ready way made for our dressing. After this are we to prevent all Accidents, and to remove all evil Symptomes; and then to consider whether it ought to be done, and might be performed with safety, and what parts it is to be made in, and what is to be per-

A Wound with
a Fracture in
Childrens
Heads.

Of Wounds of the Head.

formed after this, all these being as the general Rules and Maximes which are to be observed as touching the Operation. *Hippocrates lib. 1. de Vulnerib. Capit.* teacheth us it is to be done both by Authority, and upon Necessity, and then in that daily Experience declaring for want and Omission of these Operations, the Death of sundry People have followed, which by a timely use hereof might have been prevented.

Where Section
may be made,
and where not.

Next by *Hippocrates's* Rules also, Section may be made in any part of the hairy Scalp, except the Sutures and Temporal Muscles; the Reasons for either of which I have already shown. The Incision being transversely made, you are to separate the *Pericrane* from the *Cranium* in every part, insomuch that it be cleared on every side both for Prevention of Fever, Inflammation, and the like; as *Hippocrates* writes, *Cap. 38. lib. de Cap. Vuln.* This being done, the Wound is to be kept open by applying Dressings and Pledgets to be put therein made of fine Lint, these to be armed with a Restrictive if a large Flux appear, or with the white and yolk of an Egg beaten up together, to assuage pain; as he also directeth, *Cap. 29. lib. de Vuln. Cap.* and this so to be kept for 24 hours. Thus having shewn the things that are to be done, we are in the next place to give you the Reason of its doing, and this may contain in it these Heads: That the pieces of Skull or Weapon may from thence be removed, or that a depressed part of the Skull may be reduced into its proper place; That Matter or coagulated Blood collected between this and the Membrane *Dura Mater* may be discharged, And that we may apply proper Medicines for the Wound and Fracture: All which *Hippocrates* directs in *Cap. 31. lib. de Vuln. Cap.* The time also of its apertion is set down by him, *Cap. 34.* it being to be done before the fourth day, and may be done after this too, if bad Symptoms command it; and so the seventh or ninth day may serve.

In 4 cases the
Head to be
Opened.

We

Of Wounds of the Head.

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We next are to shew you how this is to be done, and with what Instruments; and amongst these may be reckoned the *Capital Saw*, *Raspatories*, *Levatories*, *Trepan* and *Heads*. The Figures of which you shall have exactly delineated at the end of this Chapter.

4 Instruments
required in
Trepanning.

I will only touch upon the use of every of these, and shall come to the *Trepanning* it self.

Thus the *Rasp* is generally used in a Fissure, and Foul Bone, and when you use them, place your Patient in a good posture, let him have his Ears stopped with wool, cover the Wound with Linnen Cloath, that the Patient may not have the lips thereof touched therewith. The next is *Levatories*, these used chiefly for the raising up of a depressed Skull; when you use these, take care that an even hand be kept. Thirdly, we come to the *Capital Saw*, this chiefly used in a depression or Fracture on one side of the Bone, used also to remove away the distance of the *Cranium*, left after the application of the *Trepan*, and this brings me to the *Trepan* it self; wherein we may enquire its use, and in what places it is to be applied, and what method used after it. Of each in their order:

Of the *Trepan*
and its use.

And because Perforation, Trepanning or Trafining is of great use when the Bones are extreamly foul, but of most use in these Diseases of Fissures, Fractures and Contusions of the *Cranium*; and since the Use hereof is of great moment, and the Operation of great danger, how much should the young Chirurgion make trial of his Art upon dead Skulls, which is a ready way to bring his hand in ure to practise upon the living? Wherein he ought also to be very cautious in what cases he is to apply this; for neither a Fissure or Fracture do absolutely require this Instrument, as without which they were not to be cured: And Nature, we may see in many cases in slight Contusions, useth her endeavours very happily for the discussing of the extravasated Blood, without the assistance

Of Wounds of the Head.

assistance hereof, except the innate heat be much lessened by extream cold. But indeed in such cases as where the extravasation of the Blood doth occasion Putrefaction, this is to be applied with all speed, for this Putrefaction doth bring a great company of ill Symptoms with it, and oft-times Death it self. It helps to raise the depressed Bones from the two Membranes, and helps all those Inconveniencies as Splints and the like, by making way for their exition; and hereby also have we brought a fair method to give us to see our work before us: This is not to be applied upon the Fracture if the bones be severed; not upon a Suture, because hence the Nerves, Veins and Arteries by which the *Dura Mater* is annexed to the *Pericrane*, might hereby be lacerated: Neither is it to be applied to the Temples, both in respect of the Temporal Muscle, and also of the Squammose Suture.

The manner of
Trepanning.

These being premised, the hair being shaved, and the Skin and *Pericrane* divided in form of a Cross, and the *Cranium* made bare and fit for your Operation, let the Patient be well placed, and his head firmly held, his Ears being stopt with Cotton, then set on the *Trepan* with a Pin, which I have already acquainted you must neither be upon the Fracture or Suture. The Chirurgion holding the Instrument in his left hand, and with his right gently turning about the same until he have fixed it, this once being fixed, let him take out the Pin, and apply the *Trepan* again without it, still keeping it in its motion, and if you perceive any small filings of the Skull appear, remove your *Trepan*, and wipe them away; this *Trepan* is sometimes to be dipt in Oyl, both for its more ready and easie performing its Office, and sometimes in Water that it grow not hot. If any Blood appear, it is a certain sign that it hath penetrated the first Table, and this directs you to be very careful how you proceed, lest you hurt and wound the *Menin-*

ges by an unhappy slip, being a very great cause of Death. When you perceive the piece of Bone is loosed by the *Trepan*, you may with a fine Levatory or small Instrument free it by degrees from the other parts of the *Cranium*, so as you may without danger take it up with your *Forcipes*, if any ragged pieces appear, which may hurt the *Meninges*, you are to remove them; all being removed, apply a piece of white Taffaty or Satten dipt in *Mel Rosarum & Oleum Rosarum* until the 7th day, after which use the Oyl of Roles & *Ol. Hyperici* together, anointing the Head round about the wounded part with *Linimentum Arcai*, and fill up the Cavity with Dossils and Pledgets armed herewith, if any Scales remain, *Arcæus* reporteth by the benefit of his Liniment they will fall away within Twenty or five and twenty days. Continue your digesting Medicines whilst the matter appears (as we have shewn in simple Wounds, then Sarcoticks; and in this case this Powder being sprinkled upon the part, is much commended, *R Pulv. Ireos. Alo. Thur. Mirrh. Aristoloch. ana ʒj, misce.* Or this, *R Sang. Dracon. C. C. an. ʒjss Mirrh. ʒss Thur. Irid. an ʒj, misce, fiat pulvis Subtilissimus.* These to be sprinkled upon the Bone that is decayed, and the other vacant place. If the wounded Cutis be not much, you may use Unguents, as *Unguentum de Betonica*, *Linimentum Arcai*, and the like, then procure a Cicatrice with Epoluticks. And thus have I given you the true method of *Trepanning* the Skull: Its figures here to be used, are or may be reckoned an *Incision-Knife*, a *Rasor*, a *Capital Saw*, a *Trafine* or *Trepan* with heads, a *Levatory*, a *Raspatory*. Each of which you have fairly delineated in this following Figure; and on the other side, you have presented a Figure of the true manner of its operation, and how it is to be placed upon the *Cranium*. And before I conclude this Chapter, to make good *Hippocrates's* Authority, I shall present these

A Sarcotick Powder.

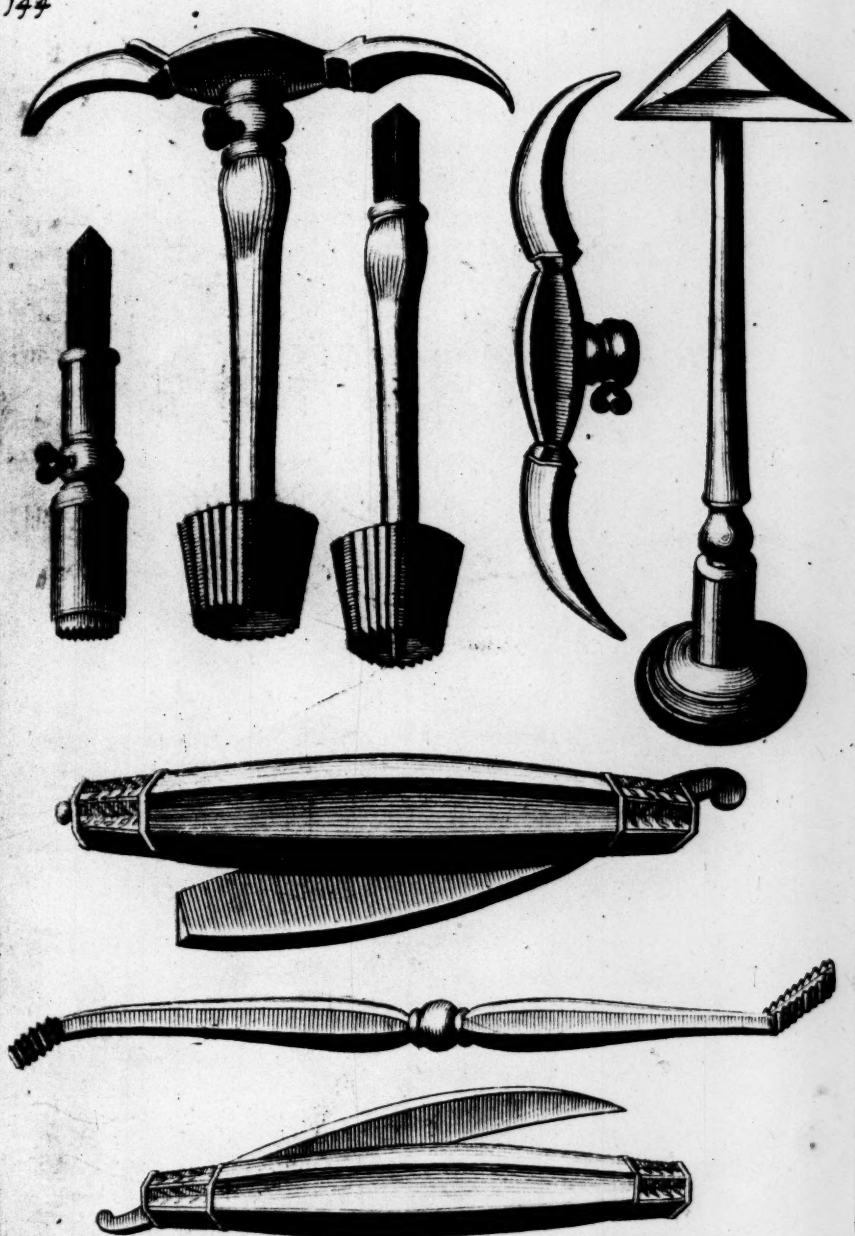
Another.

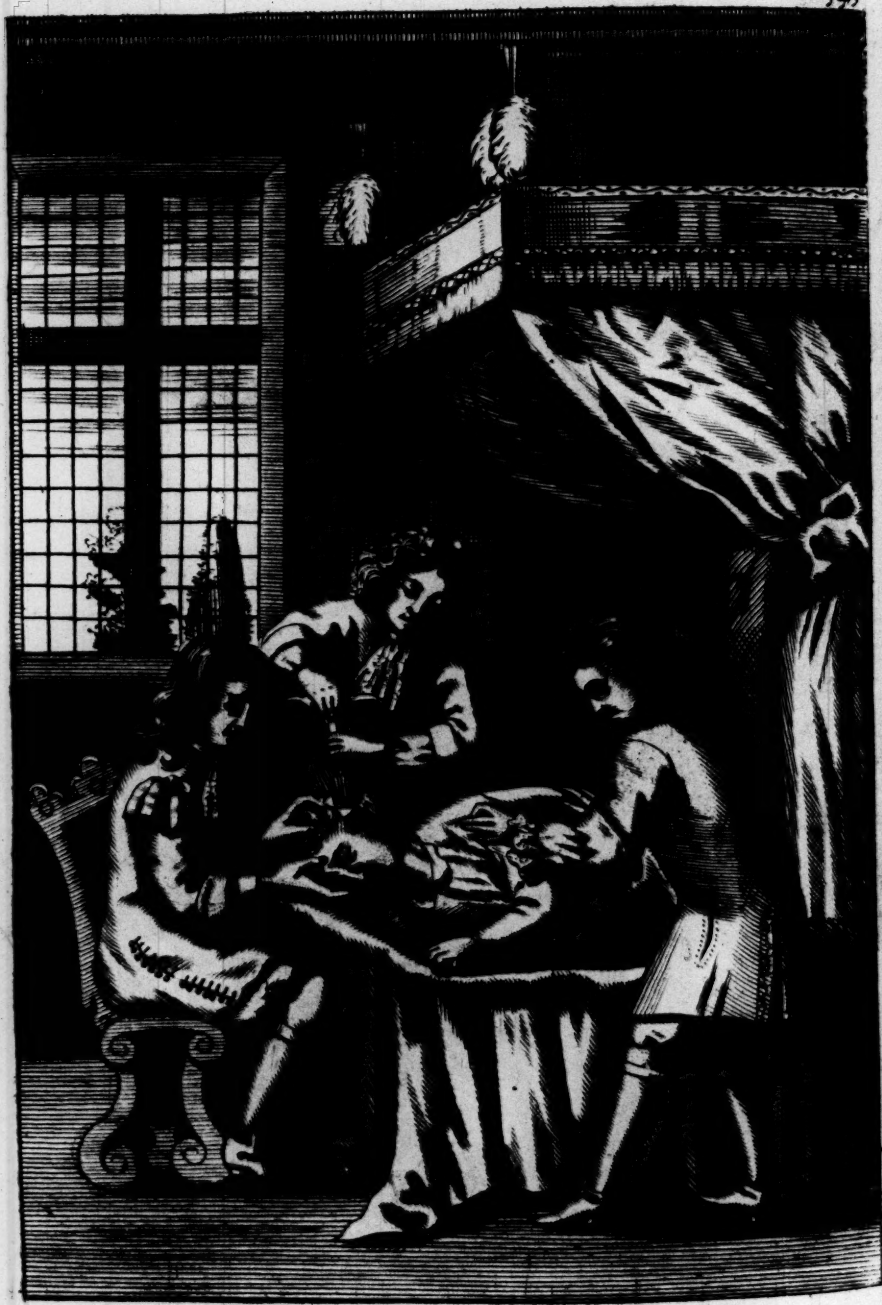
1 History.

two Histories: in the first you may see how Passion can alter both Scene and Actor; and in the next, how upon very small and slight Wounds Death may follow. In the 19th Observation of *Fabritius Hildanus Cent.* you may Read of a young Man who being of a strong and Cholerick constitution, having received a Wound in his left *Bregina* with Fracture of the Bone, the Wound being dilated, and brought to Suppuration, the pain ceased; and the Bones extracted, the Wound mundified and began to fill up with flesh, and all appearances of Symptoms banished, and it was near covered with a Cicatrice; upon exercising himself in Venereal Celebrations with a common Strumpet, within few hours after, he fell into a Fever, and intolerable pain of his Head, the Opposite side grew resolute, the arm in the hurt side corrected with a Spasme, and being acquainted with these Symptoms, these not giving way nor yielding to any Medicine, at the fourth day shut up the last hour of his life.

2 History.

The second is of a Noble Virgin, who being hot in Dancing, by mischance falling upon the back part of her Head, she there received a slight Wound, scarce perceivable, accompanied with no pain or inflammation; The first and second day this being neglected, it began the third day to seem painful; upon which, sending for a Barber, he shaved her Head, and he scarce perceived any appearance of a Wound, insomuch that he thought she sent for him to laugh at him; the fourth day after, she was corrected with a sad pain in her Head, and Fever: *Hildanus* being called for the sixth day, he found her deliriated, her Face and Eyes inflamed, her Tongue growing black; and the day following she poured forth the last sand of her life.





CHAP. XXVI.

Of Contusion.

AS our Discourse hath hitherto guided us to the Knowledge of Signs, and Præfages in Wounds of the Head, and hath also shewn what Instruments are necessary in order to the Cure of Fractures of the Skull: Our next intent will be to shew you the variety of Fractures, which may be said to possess the Skull, and of these there is great difference allowed amongst their numbers. *Hippocrates* only naming five, viz. *Fissura*, *Contusio*, *Effractura*, *Sedes*, and *Resonitus*.

Galen on the contrary nominates eight, and thus calls them, Ῥήγμα, Ἐκχρηλίω, Ἐγγίσωμα, Ἐκπίεσμα, Καμάρωσις, Ἀποσπασματισμός, Θλάσμα, Ἀπύχνημα. And these are the differences of Fractures which are of the Head, some of which are accounted simple Fractures, as these three, *Contusio*, *Rima*, *Sedes*; others more compound, as these 3, *Depressio*, *Cameratio*, *Excisio*; the other two being *Col-lisio* & *Contrafractura* or *Resonitus*, of each of these in their order; in which I begin with *Contusio*. This Species of a Fracture is called in Greek θλάσις, or θλάσμα, or Contusion, and this is a proper name given to every Solution of the Muscles and fleshy parts; but here it is more properly termed an Impulsion in the *Cranium*, occasioned by the weight or violence of some ponderous and external Instrument, much expressing Instruments of Tin or Brass, the which being smote or strook by any hard or heavy Instrument, do occasion an inward bent and swelling. *Paulus lib. 6. c. 90.* denies Contusion to be any Fracture, when as only in it is made a Dent in the Bone, the continuity of the Skull being altogether entire.

Contusion a
simple Fra-
cture.

2 Differences
of Contusion.

In Contusion, these two Differences are generally observeable, the Bone being either wholly contused, so as that the *Dura Mater* is forced to flee from the *Cranium*; or, not wholly Contused, but Superficially. These do generally happen in Children, whose Skulls are thin, and more properly allowed to be Cartilaginous than Boney. Suddenly after the blow is given, or hurt occasioning this Contusion, it doth not appear, nor yet the hurt which is contracted in the Bone: but within a few days after, the colour of the *Cranium* changeth, and will appear whitish without redness; and if it be carious, it will appear livid or blackish; and where this appears, you are by your *Raspe* or Scraping Instrument to take away so much of the Bone until the blackness is quite extirpated, and then to heal the Wound by Incarnatives. And because it oft-times happeneth that Children and Infants by reason of the weakness of their Heads and Legs are oft subject to fall from high places, being left alone, and hereby do receive very sad and miserable Contusions in their Heads. And here according to *Hippocrates's* Aphorism, the Blood being præternaturally transfused into some Cavity, doth there corrupt: That we may prescribe a right Curative method, we are to take notice, that this putrifying Blood be not permitted to descend to the *Dura Mater*: And therefore sometimes opening the *Cutis* for the discharge of this matter, the Patient is brought into great danger. And that this effect may more accurately be treated, we are to abstain from Section or Incision; for by the reason of this copious efflux of Blood, the Spirits become resolved, and Fluxion excited by occasion of this Incision; and Children hereupon also being disturbed and vexed, by crying, and the like, the Veins of the Head become tumified, and Inflammation follows, and very oft Death it self: And therefore for a more safe method to be used, Take this:

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Of Wounds of the Head.

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A most exact
way to Cure a
Contusion in
the *Cranium*.

Catapl.

Empl.

The Head being shaved, apply thereto Bolsters made of linnen Cloath or Tow dipt in the Whites of Eggs, Vinegar, and Oyl of Roses together; and let these thus mixed be kept on for a whole day, to be framed in that consistence that it do not grow dry; in Summer time to be applied cold, in Winter hot: For hereby the flux of humours is prohibited, and in some measure Resolved; The day following apply this Cataplasme, *R. Pulv. Rosar. Rubr. fol. et Flor. Myrtill. an. ʒ ij. Farin. Hord. Fabar. an. ʒ j. pulv. Absynth. Betonic. an. ʒ ʒ. Mel. ʒ ij. cum vino austero fiat Cataplasma, sine addendo Ol Rosar. Chamomel. an. ʒ j. Cer. q. s. fiat Cataplasma.* This is to be applied twice in a day, so as it may comprehend both the Contusion and its neighbouring parts; and this continue untill the 9th or 11th day, in the which time you will find the Contused blood to be resolved, and the *Cranium* to be brought to its former habit. The 11th day being past, by *Galen's* advice we may apply *Empl. Diapalma* to be thin spread, and this to be changed every third day. After the 20th day, for absorbing the humours and restoring the collided *Cranium* into its proper place, *Empl. de Betonica* is to be applied. *Ambrose Parrey* adviseth this Emplaster, *R. Farin. Tritic. ʒ j. Ichthyocoll. in aqu. Betonica. et salu. solut. ʒ ʒ. Pulv. Mastich. Thur. Farin. Volital. Surg. Drac. Gyps. an. ʒ j. ʒ. misce, coquantur in aqu. Betonic. & salu. ad justam consistentiam. Particalide admoveatur.*

In these cases also Cupping-Glasses are very much commended, but in young Children they are not very proper, for by kind means used you will find Nature run through a great part of your work. But I will not deny but they may be very useful in some who are grown to a pretty age, as we may see in this Story of a Boy, who falling from a Horse upon the ground, had his right *Bregma* struck by one of the horses feet, the which did both depress and contuse his Skull, of which blow he

Cupping-
Glasses.

History.

lay as dead without sense or motion, with his Eyes closed up, the blood coming through his Ears and Nostrils, who by the benefit of a Cupping-Glass applied to the part with much flame, within 17 dayes without any Incision of the *Cranium*, he was restored to his former health.

History.

Another History I shall here write also, to shew of what strength Passion is in young Children. A Lad of 15 years of age having received a Contused Wound about his *Bregma*, with Fracture, the Wound being at first dilated, and the pieces of bones extracted, it was brought to a happy suppuration, and all evil Symptomes disappeared. The Eleventh day being past, the Child being vexed, and moved to Anger, suddainly fell into a Fever, and Phrensie, so that in four dayes after he dyed: he being dissected, the Membranes of the Brain were found inflamed, and both the Ramifications of Veins and Arteries much tumified with blood.

Another History.

I will conclude this with that Remarkable History of *Hugo Blotius*, who writes of *Charles* Nephew to *Charles* the 5th of *Spain*, who after having been troubled with a Quartan Ague, was by his Physicians directed to walk and refresh himself in the Air; As he was going out of his Chamber door, and seeing a Maid of Honour making of Garlands, made haste to her; she hereupon being surprized, making haste away, fell against the barr of her Chamber door; the Young Gentleman being herewith vexed, that he should be the Occasion of this mischief, in a fury going to his Chamber, meets with an unhappy Fall, which caused a wound in his head, coming from her Chamber: The Chirurgions hereupon being called, they presently rowled it up, and intended to consolidate the Wound, neglecting the efflux of matter, insomuch that his head speedily tumified, and this Young Gentleman lay as if he were in an Apoplexy. *Andreas Vesalius*, an Expert Anatomist, and well skilled in Chirurgery.

ry, being sent for, affirmed, That the chief method which must give any hopes of life, must be the opening of the *Pericrane*. The which by general consent being allowed, no sooner was this done, but a fatid matter came forth: The young man soon recovered himself, and by the benefit hereof, as one restored from the Grave, he was raised from this deep sleep.

CHAP. XXVII.

Of Rima or Fissure.

THE Second Kind of these simple Fractures is called *Second Fissure*, *ῥωγμή*, or *Fissura*, or *Rima*; and by *Paulus* is described a superficial or profound Division of the Skull, and hence is by him called *ῥωγμή τετραγώνος*, or *Rima Superficialis*; and this by its not appearance is a very frequent occasion of death. This may be said to pass through either one or both tables, if it superficially pass no further than the spongy bone between both the Tables it is thus far dilated; if it pass between both, it is especially to be dilated thorough the first if not both, making a way through the second, leaving a competent Apertion for the discharge of the coagulated bloody matter. *Hippocrates* declares that there is no Fissure without a Contusion; and does further adde, That this for the most part is made by a ponderous Contusing Instrument, as a Stone, Wood, Iron, falls from a high place upon some sharp hard body: And when either of these or the like do happen, they do cause a Fissure in, or cleave the *Cranium*: Just as an Earthen Vessel receiving a crack upon falling on a hard body.

Of these many differences arise, some of these being thick, others thin, others very thin, and these chiefly
Differences of Fissures.
at

at the beginning before they have contracted Matter, for the Knowledge of which there is required a Judicious and Artificial Conjecture to be taken from the Instrument hurting, the occasion, the age of the Patient, and the Temper of the affected part, and other Symptomes which may be taken from the hurt; for these do declare the most inconspicuous signs of the Fissure: as some being short, others long; some broad, others narrow: some streight, others crooked, according to the Instrument hurting. Some of these wholly passing through the *Cranium*, others superficially onely entering it. But where a Fissure hath been made through either Table, and passed to the *Dura Mater*, and hence by consequence made it to flee from the *Cranium*, and by this division the mouthes of the Vessels laid open, so as that they pour forth their blood which was collected and inserted under the Skull, which Vessels conveighing this blood to the Brain arising from the inward Jugulars, and so passing upwards, and there expanding themselves very plentifully about the *Dura Mater*, are by Concussion very easily lacerated and broken, and the blood herein being collected, unless a speedy way be found out for its Expurgation, we may well guess of the Patient's miscarriage. And if any man neglect to raise these Fissures at the first, although there be no need appear of his dilatation, he may for a few dayes find that the Cure may succeed according to expectation, but shall as readily meet, that to take heed and beware hereof is the master event of Fools, who by unadvisedness meet Accidents following which will much cross their Expectation. For when this hath arrived at the Eleventh or Twelfth day, either sooner or later, Matter then beginning to putrifie between each Table, and that this putrification will communicate its self to the Membranes of the Brain, and the Brain its self; and hence will follow Fevers, with inordinate Stiffnesses, Watchings, Vomiting, *Delirium*,

rium, Troubles, and Inquierudes; and if the Wound do happen near the Eye, the other Eye does appear to be inflamed; and after these the Patient is surprized with *Singultus*, and resolution in the opposite side: And as touching the Wound you will see the Lipps fall, a small Matter appear, and this is crude and indigested, intemperate, and of a bad smell; shewing and declaring its want of native heat, and when the Patient leaves the world, his last minute is shut up, in an appearance of blew or dry, or pale and dry. But when we have any command from hope to proceed here according to Art in others who have their Skulls Fissured; if it be not to be discerned by the Eye, cause the said Patients breath to be stopped; after which done, if you meet with a thin humour, or bloody Matter, it portends a good sign. But if this way fail, then apply Ink which is thin and may penetrate, and let the affected part be dressed with this, and let this serve for the first dressing. The next dressing with a Sponge being wet, wash off the Ink from the *Cranium*; and if you see any entered in, follow this tract untill you have wholly obliterated it; and for this Use, the *Trepan* is not so proper an Instrument as is the *Raspar*, or the thin Instrument most useful for this work. It being dilated, dress the Wound as I have already directed you, after the application of the *Trepan*.

And because I intend a little to enlarge upon these Fractures, I shall here produce several Histories, which will be of great benefit to the Young Chirurgeon. And the first shall be of a *Fissure* onely penetrating the first Table; the second of a *Rima*, penetrating both Tables; and the third of a Wound in the right part of the Head with *Contusion* and *Fissure* of the *Cranium*.

Astouching the first, and this, *Glandorp* writes of in his *Speculum Chirurgorum*, fol. 43. of a man Forty years of age, being of a *Phlegmatick* and *Caeochymick* habit and Constitution of body, being too much intoxicated with Wine,

History.

Of Wounds of the Head.

Wine, and endeavouring to climbe a Ladder, fell down backwards, whereby he had a Contusion not far distant from the *Lambdoidal Suture*, hence did arise pain, and inquietude of his body, and from his Nostrils did flow forth much blood. For this, because it onely appeared as an *Ecchymosis*, the *Cutis* being entire, his head being shaven, this *Cataplasme* was applyed; As *R. Summitas. Absynth. Meth, an. pug. iiij. pulv. fl. Chamomel. Melilot. an. pug. iij. Rosar. Rubr. Cheiri an. pug. ij. Farin. Cicer. Fabar. an. ʒj. Hord. ʒvj. Cum vini Q. S. fiat Cataplasma, in fine addendo Ol. Rosar. ʒj. B. misce.* The pain not herewith being asswaged, it was begun to be suspected, whether either the *Pericrane* alone, or the *Cranium* with it was hurt also. Hereupon a Crofs Incision being made, there was found Matter to lodge between the *Cranium* and *Pericrane*, the bone appearing black, and a Fissure onely seen to penetrate the first Table: which blackness was wholly rased out even to the second Table, after which was applyed and sprinkled a *Catagmatick Powder*, and to the Wound was applyed a *Digestive*, by which the hurt and contused parts, and the effused blood might be both digested, putrifie and be mundified. And for this purpose, this of *Gal. 3. & 4. Method. Med.* was used: *R. Terebynth. Lor. in aqu. Malvar. ʒj. Unguent. Dialth. cum Gum. ʒij. Mirrh ʒij. Unguent. Aegyriac. ʒj. B. Vitell. Ov. Q. S. misce.* The contused flesh being ablated, a new flesh was generated by the above-written Balsome, and in the interim the other parts of the *Cranium* were sprinkled with the Powders untill they had procured a new flesh, and a Cicatrice was obduced by *Empl. or Unguentum Diapompholigos.*

Unguent.

Another
History.

The Second is of a Youth of 14 years of age, who climbing a Tree and a bough breaking, he fell down, whereby he received a very large Wound, Vomited, was deliriated and convelled, the flux of blood which followed was speedily stopped, his head shaved, and the depth

depth of the Wound searched into. The cleft through which bubbles, Wind and Matter (his Nose and Mouth being shut and stopt) was seen to pass; because he grew deliriated, and his spirits drooped, such Medicines as ease Pain were applyed: The next day he beginning somewhat to come to himself, was acquainted, that without a speedy application of the *Trepan*, he must be pronounced to be in danger of loss of life; and being provided for the performance of the same, he had a Cordial prescribed him, his Body kept soluble by Clyster, and his Head Trepanned a little under the hurt, and an exquisite and convenient Dyet being prescribed him, the Wound was afterwards Cured, as we have already shown in the former History.

A Third History.

The Third was performed by the most Excellent Anatomist *Adrianus Spegelium*, Ordinary Professor of *Anatomy* and *Chirurgery*; and this was of a man seven times Trepanned in one part of the head, and yet recovered, who having received a Wound in the right part of his head with Contusion and Fissure of his *Cranium*: here it being much dreaded that Matter or collected blood might lodge under his *Cranium*, his body being made soluble by Clysters, and a good Order of Dyet prescribed, that the *Trepan* might be applyed with more freedom; The

Pericrane was dilated in form of an **X**, and the flux of the blood being stopped, it was after the first day, Trepanned the third day, then two dayes after that again, and few dayes after this he was Trepanned again; and thus so often untill he had suffered seven times being Trepanned in one part of his head, (*viz.*) in the scincipital part thereof: insomuch that a great part of the Skull was exempted in that side, after which the Wound was thus handled: Upon the *Dura Mater* was first sprinkled this Powder, *R. Cort. Thur* \mathfrak{z} j. *R. Rad. Aristoloch. Rotund. Irid. Puccin. an.* \mathfrak{z} j. *misce, fiat Pul-*

X

vis.

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Unguent.

vis. And this is to be sprinkled upon the Part, over which is to be put a piece of Silk or fine Linnen Cloath dipt in Oyl of Roses, the *Cranium* also being to be sprinkled with the same Powders, and to the lips of the Wound to be applied this Digestive, *R. Terebinth. Venet. lot. in aqu. Veronic. ʒj. Mastich. ʒj. Ol. Rosar. ʒij. Vitell. Ovov. q. s. fiat Digestivum.* Over this to be applied *Diapalma*, the Head being to be anointed with *Ol. Rosar. et Cheirin.* And Cloathes dipt in Red Wine in which have been boyled some Capital Herbs, to be applied thereto. After which let it be rolled up, every other day the Medicines to be renewed; The eminencies of the bone, and the blackness to be scaled off, the Wound being absterged and mundified, it is to be incarnated with *Unguentum de Betonica*; This not to be done untill all scales be removed, and then Cicatrized: And this Man to admiration, without any Fever and Pain, or other Symptome, perfectly Recovered.

CHAP. XXVIII.

Of Sedes or a Fracture, shewing the place of the Instrument where it was impacted.

E*Δρα*, or *Sedes*, this is the third Species of a Simple Fracture, so properly called, when as the Bone remaining in its natural state, makes the place conspicuous where the Weapon had been infixed. It's called a Solution of Continuity in the Bone of the Head, made by a sharp cutting Instrument, leaving its print in the *Cranium*, remaining in its natural state, not broken inwards.

wards. *Paulus* does give us these two Species hereof, the first whereof he calls ἐκκοπή, which is by him held to be a division in the *Cranium* with eversion or elation of the offended Bone. The other he also calls ἀποσκηπαρισμός, as when the fractured Bone of the Skull does recede from the other Bone, even as we see a Chip fall from the Body of the Tree when it is hewed or chopt from it; and hence called the Ablation of the bone. A third Species hereof is named by *Hippocrates*, and by him called διακοπή, and this is a large & deep Cutt penetrating the *Cranium*, as *Philothæus* explains it, *Comment. Aphorism. 16. Cap. Lib. 6.* Ἀνεγνῶν δὲ διὰ βάθους διαίρειν, or *Divisionem Profundam*. There are several differences allowed hereof by *Hippocrates*. It being sometimes simple without Fissure, Collision, and Effracture; and this he hath in his 10th Sentence. Sometimes with Fissure and Contusion, and sometimes onely joyned with Contusion. Sometimes this happens in a direct line; otherwhiles in an oblique. And here also *Hippocrates* adviseth, That that Wound which is obliquely made in the *Cranium* is less terrible, than that which is made directly; for in an oblique Wound the subject parts are less Concussed. Out of this simple *Sedes* are also framed these Compounds, both in regard of the Weapons which do variously afflict the *Cranium*, and also in respect of the Bones themselves; some of which are solid, others more soft. And hence is it if a Weapon having a blunt edge; seize on a solid part of the *Cranium*, besides this Incision, it also maketh a Fissure; and where it happens in a part of a middle substance between both hard and soft, this is partly fissured, partly collided by reason of the *Sedes*. He therefore who will undertake the Cure of any of these three fore-cited Fractures, ought well to understand their severall and distinct Species, before he applyes his hand, and not too rashly speed himself upon these dangerous Cures which are of so great

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import as touching the life or decay of Mankind. Without the great care in minding and observing of which, or temerariouſly neglecting hereof, the *Old Proverb* may in ſuch be well verified, *Cecus Cecum ducens*, &c. And having thus given you the general Directions here very appoſite for this part and ſpecies : To conclude this, if it paſs through both Tables, and there do remain no fruſtulaes of the Bone bordering upon the *Dura Mater*, and room enough left for the diſcharge of the Matter occaſioned by the largeneſs of the Wound, Dilate no further, but obſerve the method already deſcribed in my general Diſcourſe of Wounds of the Head ; but ſhould any ſmall pieces or ſplints of the Bone offend the *Dura Mater*, and the paſſage not wide enough for the diſcharge of the Matter, then may you come to the uſe of the *Trepan* ; if it onely paſs into the firſt Table treat it as you are directed in a Fiſſure, and afterwards dreſſ it with *Unguent. de Botanic.* or *Linimentum Arcaei.*

History.

Falloppius in *Comment. de vulnerib. Caput. Hipp. 16.* writes, That he ſaw in a Scholar being wounded in the back part of his Head by a weighty Sword, wherein the place of the Sword was apparent, the Bone being ſcaled, and neither finding Fiſſure or Contuſion, nor finding or knowing how this happened, upon a further ſearch, he came to the ſecond Table, and in this he found a large Fiſſure : and the reaſon of his proceeding after this manner was, the outward part being Contuſed, this Contuſion was communicated to the ſecond Table, and whereas the outward could not fall into itſelf, nor the inward Table into itſelf, hereby it ſuffered this Fiſſure, the which he evidently found out : And therefore in all ſuch caſes we are directed by *Falloppius* his Advice, to abrade the *Cranium* even to the lower plate.

CHAP. XXIX.

Of Excision.

HAVING dispatched these three Simple Fractures in *Cranio*, we next come to three Compound Fractures, and these are called *Excisio*, *Depressio*, and *Concameratio*; of each of these in their order, and to begin with *Excision*: And this Species of a Fracture is called *enxoma* or *enxoma*, and this happeneth, when the substance of the Bone is amputated, or the *Cranium* so wounded, that it separates from the Hole. If the *Furcula* or *Sliver* cut away thus, adhere to the *Cutis Musculosa*, and the Wound penetrates no further than the first Table, this is to be separated from it, and the *Cranium* to be smoothed with the *Raspatory*; but if both the Tables adhere to the *Membrana Carnosa*, they are not to be removed, but to be reduced to their proper places, the Wound being mundified and deterged with white-Wine, or Spirit of Wine mixt with *Mel Rosarum*; then adjoyn the *Cutis Musculosa* to the other with convenient Stitches, as *Ambrose Parrey* adviseth; who also doth order, that if any part of a Bone should be cut out, accompanied with a large Wound, or severed from any other part of the *Cranium* and do only adhere to the *Pericrane*, and Musculous *Cutis*, it is not from thence to be removed. And although this may appear as a superfluous and superficial Caution, and look as an useless Maxim, yet it is not to be contradicted; for a *Callus* will hereupon generate speedily, the which by the strength of Nature will be soon procured as *Celsus* observeth.

The truth of which, certain Experience makes good; *History.* as he also sheweth in a Captain, who having received a very large Wound upon his Coronal Bone, which equal-

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ed the breadth of three Fingers, occasioned by a large and strong Sword, so as that it separated each part from the other, so as that the neighbouring Bones did not cohere; but scarce adhering to the *Pericrane* and hairy Scalp, he fell with his Face forward upon the ground, and had some part of his *Dura Mater* hanging over his Eyes. *Ambrose Parrey* being consulted about this his Cure, doth speedily reduce the *Dura Mater* into its proper place, by removing it from the *Cusis* of his Face, observing *Hippocrates's* Rules, not to leave the Brain unarmed naked: Wherefore the Blood being deterged, which was fallen upon the *Dura Mater*, and the prostrated Bone reduced into its true place, and with a Suture made with three Stitches in the upper part, he closed up the Wound, and ordered that the Matter remaining might be discharged, by the vacant spaces between the Sutures or Stitches; and hence between these vacancies were put in small Tents and Dofils, by the which the Parts were kept open, and the Matter discharged: And although the Body was stabbed through in several other places at this time, occasioning many Wounds, by God's Mercy he recovered, without any loss of *Pericrane* or *Cranium*, but what necessity compelled to be taken away.

CHAP. XXX.

Of Effractura or Depression.

THis Species of a Fracture is called *ισφασις*, *Effractura*, *Depressio*; and by *Paulus Aeginetta*, *Depressio & Introcessio*: And this is framed both of Contusion and Fissure, under which are contained *εγγισμα*,
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or Appropinquation of Bodies, and Καμψῶσις, or Concameration, and ἐκπίεσμα, *Effractio*: All the which by *Paulus* are allowed as so many various Species of Fractures, the first of which by him is owned to be a division of the Bone, in which the hurt Bone falleth downwards towards the *Dura Mater*, out of its natural place, and therefore it is so called, ἀπὸ τῆ ἐγγύς, or *propè*. *Camarosis* is a division of the *Cranium* with its Exaltation, the Bone advancing upwards. *Galen* doth thus distinguish them, *Lib. 6. Meth. Medend. ἐγγίσματα* by him being called a Fracture, whose Bone happens upon the *Dura Mater* upon its depression; Καμψῶσις that which hath the Bone exalted. But this Species of a Fracture doth much differ from a Fissure, because in this is an Introcession, but none to be found in a Fissure, the Bone in that remaining in its proper state and nature: from a Contusion also; for although the Bone do introceed in it, yet the Continuity thereof is not solved; whereas in a Depression or Introcession, the Bone is fractured into many shivers. And here also *Hippocrates* his observation may be well applyed; as we daily see, hard things do rather break than bend; whereas soft things we see do more readily bend than break: But in a Wound happening with a depression of the Skull, we see apparently, that there is not only made a Divorce of Parts in the *Cranium*, but fractures them so, that they are seen to lodge upon the *Dura Mater*, there compressing it, the which lacerated Parts here thus happening, do hinder the motion of the Brain, and are oft-times seen to appear fixed, like so many Splints or Shivers upon its Membrane, terrifying and perplexing it. And the case lyes here parallel with the Heart; for as the body of the Heart doth attract and expel its Substances, by its extending and contracting Quality in its proper times and circuits, so also doth the Brain, in which is seated the animal Spirit contained in its Ventricles, transmit the same to every Part, being;

being thereto incited by a fit and proper motion, and thereby doth distribute and elaborate the same. But when this motion is intercepted by a compression of the Bones and Splints, and the like falling thence, this distribution and elaboration must necessarily be violated, which motion doth evidently appear in wounded people, whose Heads are detected, and in new born Children. Without doubt therefore the Parts being thus fractured, the Membranes must hereby receive much prejudice, and in these dangerous cases, the Chirurgeon hath left him but small ground to build any hopes for a Cure. In such matters therefore which carry such evident peril with them, the business is chiefly to be left to Nature, the best and most safe Mistress for preserving her Parts in form, save only we are to assist her with our best skill and endeavour, to prevent all evil Accidents and Symptoms, which may intervene before the fourth day, if you come at the first, and so from the fourth to the seventh.

And as to the Cure hereof; Those Splints or Shivers which are quite loose, raise up with your *Elevatory*, and take them away: But if you meet with a Fracture, that is only loose at one end in the Bone, adhering in the other, here are you to use the *Trepan*, to be applied as near to the fractured Part as may be, and then to take away a small part of the *Cranium* with it; and if you cannot reduce the depressed Bones to their proper places, separate and take them out by Art, and use that care, that you may happily conclude your Cure without any danger to the *Dura Mater*, or its subjacent Parts.

History.

Fabritius Hildanus, Obs. 3. Cent. 2. doth write of one of forty years old, in the Bishoprick of *Colen*, who was smitten in his Head with an Iron Bullet, which weighed a pound and a half, causing a large Depression and Fracture in the left *Bregma*; upon the receiving of which, he

he fell upon the ground like a dead Man, with the loss both of speech, sight and hearing; besides which, he was corrected with a Palsie in the opposite side: the *Cranium* being in few days elevated, and reduced into its natural site, he recovered his speech, and the Symptoms began to grow remis, and at length was restored to his pristine health.

On the contrary also he writes of a young Man of four.² *History.* teen years of Age, who falling from his Horse backwards, was so smitten by him, that it occasion'd an Impression in his Skull; but in respect little or nothing of evil Symptoms appeared at the first, the Wound also being but small, the Patient was neglected, who within a small time after, being beyond expectation surprized with terrible Symptoms, beyond all methods and applications, he was corrected with a Fever, pain of his Head, and inquietude of his whole Body; the Wound grew inflamed, sinuous and full of Matter, and the *Cranium* found to be depressed, and in few days he ended his Life.

By these two Examples we may apparently find, how necessary it is at the first to reduce the depressed *Cranium* into its natural site, and how dangerous in the contrary the Neglect hereof may prove, as we see in the latter of these two Histories; for in small and slender Depressions of the *Cranium*, the motion of the Brain may be hindered, and especially if they happen upon or near the Sutures. How to elevate the depressed Skull, you are directed in *Fabrit. Hildan. Observ. 6. Cent. 2.* to which I recommend you.

CHAP. XXXI.

Of Concameration.

IN the last Chapter I have in part shewn you what *ἡγμαρσις* is ; it is made, when one part of the Head is smitten with a Lance or any such like Instrument, and upon endeavouring to extract this, it so closely adheres to the edges of the *Cranium*, that it forceth the Skull up with it ; and this is called *Concameratio*, much resembling an Arch or Ridge ascending, but leaving a vacuity underneath : if it onely pass the first Table, smooth the Skull with a fine Raspe, and then heal it as you do other Fractures in *Cranio* ; but if it pass through both, you must lay Open the Skull with the *Trepan* in the depending part, for the more ready discharge of the Matter lodged within, which oft-times is not to be emptied out by the wounded part. If by accident any piece of the Skull fall off here upon the *Dura Mater*, you are to make so large a Dilatation as that you may come at this splint to remove it ; and so to Cure this Wound as you are already shown how to cure the former. This Species of a Fracture happens so seldome, that it is not so much as mentioned by *Hippocrates*. I shall conclude this Chapter with two Histories.

1 History.

Valleriola, lib. 5. Obs. 9. writes of a Shoe-maker who having received a large Wound in his Head, occasioned by a Spear or Lance, with a Fracture of his Skull reaching the *Dura Mater*, was seized with Resolution and Convulsion after the 7th day, and did continue speechless all the seven dayes, yet with great care and pains he was recovered.

2 History.

The Second is of *Vertunianus Comment. ad Libr. Hipp. de vulnerib. cap.* who writes of one who received three despe-

desperate Wounds in his Head ; The first happening in his Front, two transverse fingers above the eye, passing thence to the *Zygoma*, dividing the Eye in its middle; the second in the left *Bregma*, entring even to the *Dura Mater*, two fingers in length, and one finger in breadth; The third, the worst of the rest and most dangerous, happening in the *Occiput* ; this being four fingers long, and two fingers wide : hence followed very direful Symptoms, on the seventh day a Fever seized him, with a strange numbness and stupidity; his courage failed, with loss of Memory, an involuntary intestinal Flux seconded these, no Matter issuing from any part of the three Wounds, the *Dura Mater* appeared immoveable and black, all which did attend him even to the 30th day, so as there was little hopes left of any recovery, yet he was perfectly Cured. This History which he sets down, he received from Dr. *Pigraus*, Chief Chirurgeon to the King, who was a Man of great Worth and Repute ; whence younger Chirurgeons may learn, That Patients oft-times pronounced irrecoverable, beyond hopes or expectation, have been seen to be cured, and to have lived beyond the mortiferous Signs of *Hippocrates*. Such Wounds therefore are not to be neglected or disregarded, so long as Life gives any hopes to continue.

CHAP. XXXII.

Of Collision.

THIS Species of a Fracture is called *σφραδον*, or *Collision*; neither doth the *Cranium* altogether suffer Fractures, but a Suture also may endure a *Collision*, and receive a Solution of Continuity, both by Separation, Depression, and Collision. The first two whereof we have already treated on. We come now to the third. And here may we premise, That Fractures happening upon the Sutures, are harder to cure than to find out: For here are we neither to Derade or Open with a *Trepan*, by reason of the *Dura Mater*, which upholds the Brain, being tyed to these parts also, upon every slight occasion being subject to Inflammation; but how few daily study these Precepts, and bear them in their Memories! And as I have already shewn in my Discourse of Sutures, no Incision is to be made here, they being both weak, and easily perforated, hereby subjecting the Brain to mischiefs: Because also through these the Veins and Membranes do pass, the which being but lightly touched by any sharp Instrument, are made speedily to flee thence. And then thirdly, because a *Callus* being here contracted, doth hinder Transpiration. Hence also Worthy *Hippocrates* writes, That there's nothing more difficult in the undertaking of Wounds of the Head, than first to prescribe a true Method as touching Section or Incision, when, and where to be made or done, neither superficially nor diminutely. And because he would not pretermitt those places which are dangerous and will not admit Incision, here as he proposeth the Temporal Muscles, so also doth he bring in the Sutures, to be dangerous

gerous places to make any Incision in. Yet because it so happens, that a Collision doth happen in the brims of a Suture, and the *Dura Mater* which passeth through it occasioned by a violent Compression, suffers detriment in these direful cases, where a Troop of fearful Symptomes doth accompany them, as Fever, Vomiting, Convulsion, and the like, and having no other hopes of saving your Patient but by your use of the *Trepan*, you are advised upon this necessary Point to apply your *Trepan* on either side of the Suture so carefully, that your Instruments do not touch it; hereby preventing those horrible Symptomes which happen on the contrary.

To Conclude this, *Valleriola, Observ. 10. Lib. 4.* writes *History-* of *Claudius Allobrox*, who being wounded in his Head with a great Military Sword, according to the Petrose Sutures, his Skull being variously cut and depressed even to the *Lambdoidal* Suture, and which was a strange Wonder, he all this while was not correpted with any Fever or other evil Symptome supervening; the which are generally seen as common attendants on such large Wounds; the depressed and effracted bones being Extracted, the Man was perfectly Recovered by the benefit of *Mel. Rosarum*, a Cephalick Powder, and *Empl. de Bettonica*, within the space of two Moneths.

CHAP. XXXIII.

Of Contraffiture.

WE arrive now at the 8th and last Species of a Fracture in *Cranio*, and this by the Greeks is called ἀνέκχη, *Quasi ab Eccho Responſionem*; ſome call it ἀνέκχη, *Quasi Reſonitus*, or as an Eccho answering any ſound. *Paulus Aeginetta* will not grant this to be any Species of a Fracture, *Lib. 6.* and doth own, that they are miſtaken who write, That upon a Blow being given on one ſide, a Fracture ſhould appear on the other: And do further allude, That it is not in mens Heads as it is in Glaſſes; for they being empty are ſoon broken, the Skull of Man being both ſolid and full, and therefore not ſo eaſily fractured. *Soranus* who doth defend the contrary, taketh up this opinion as his Buckler, That in all glaſſen Bodies or Veſſels which are hollow, being ſmitten in one part, they generally do crack or break in the other; and this may as well happen in the Head, as in any other Part: And the Reaſons which he brings are theſe; The Air contained in theſe glaſſen Bodies which do receive the Blow, being hereby contuſed and illiſed, doth carry the ſame to the Back-part, and there force a diſiſion. And why the Air hath force enough alſo to do this, is ſufficiently evident, whenas we ſee it hath vigour and ſtrength enough to divide Mountains, and ſeparate Hills; and hence may it be granted much more readily, to have power enough in it to break a Glaſs in the contrary ſide; and when this Fracture doth happen by reaſon of any included Air, the Greeks do call this *Apochema*.

But to enlarge a little further; In every Percuſſion which is made in the Body, is there perceived or felt an

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Impetuosity and Agitation in the Spirits contained therein; and this is a spirituous Substance, which doth exhale continually from the Body: And hence is it that Bodies in Exhalation are dissipated; and this doth inhabit in the inward Parts of the Body; and therefore in every Percussion we shall meet with a spirituous Habit agitated.

Again, Many have been seen to have their Heads fractured in the back-part of their Skulls, and yet by a large Flux of Blood through their Nostrils hereupon happening, have been perfectly cured and recovered, and whence should this Blood flow but from the lacerated and disrupted Vessels? but you read not of many cured, who being smitten on the fore-part of their Heads, have their Vessels rent in the back-part thereof, because the Blood here hath not any passage allowed it for its discharge. This Fracture is sometimes seen to happen on the same Bone, and then this falls out either to be laterally or perpendicularly, the first having in it a Wound given in the right side, and a Fracture hereby purchased in the left; or from the upper Part to the lower, and here both Tables are generally allowed to be fractured. Or it happens in many Bones, and these also do communicate the Blow to the opposite Part, where meeting the *Cranium* in its violent motion, as two Men readily upon a quick motion meeting each other, doth make them give way and fall back: Thus the Skull receiving a Blow, doth communicate the same very speedily to the other Part thereof, and there doth frame a Fracture, being denied a speedy passage through it.

Hippocrates in these kinds of Fractures, will admit of no Remedies, or the undertaking of their Cure, the affected Part not being easily found out: Yet he further adviseth us, That where any suspicion of a Fracture doth offer, although it be a matter of difficulty to find it out; yet he lays down this as a Method for undertaking the same,

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same, especially if the common Signs do appear, as Fever, Vomiting, Bleeding, and the like; and no Fissure hereupon being found in the wounded Part, we are to examine the opposite, and if any Tumour or softness do there appear, you may presage a Fracture in the Skull, subjacent to that Part; or as he directs, *Fol. 325. de Vulnerib. Capit.* to have the Head shaved, and then to apply this following Emplastre: *R. Pic. Naval. Cer. an. ʒiij. Terebynth. Venet. ʒj. Pulv. Mastich. Irid. an. ʒij. misce, fiat Empl.* spread it upon Leather, and apply it to the opposite Part, and let it lye thereon for 24 hours; and if after its removal, the *Cutis Musculosa* in any place do appear moist, soft, and tumified, more than the other Parts, it yields a certain sign of a Fracture. *Cesar Arantius in lib. de Vulnerib. Cap.* doth call this *Infortunium*, here being in it the worst of Accidents; and that which makes it of great danger, is the hardness of finding the place out. And since this is so difficult, the Fissure lying obscure under the *Cutis*, and without any notice thereof being taken, at first how cautelously and considerately had a Chirurgeon undertaken such a matter of danger, wherein he is advised both by Rule and Authority to gain its true knowledge, before he undertake any Cure: For having attained its artificial conjecture, upon dilating the sound Part the Patient doth oft-times miscarry, and what miserable calumny this may bring upon his head, any rational Creature may easily judge. And as *Hippocrates* allows, may well be called *Infortunium*; for on the contrary side, if Section and Incision be not made in this case, the Part affected runneth into an Abscess; and this also is ascribed to the Chirurgeon's negligence; so as we may behold, being concerned herewith, how subject he is to Calumny and misfortune, and an unkind apprehension. And since as *Hippocrates* writes, we cannot arrive here at the true place, and so thence discharge the Matter inwardly lodged; for want hereof

hereof the Part suddenly doth suppurate and inflame, and hence throwing it self upon the *Dura Mater*, through the Fissure, doth at length reach the Brain it self. And hence are we by his Directions either not at all to undertake this Cure, or be therewith concerned; or if being thereto allured by perswasion of Friends, we are to use our greatest endeavour to gain its Knowledge; the which once having arrived at, you are, if the second Table be fractured, the first remaining whole, come to the application of your *Trepan*, both for the discharge of Splints and Matter. And if upon acting your part with Judgement added to your Art, it so happens your Patient miscarry or die, you shall have these four Excuses to defend you: As the *Cranium* being depressed by a violent Contusion, and then doth presently return to its proper place; if the Fissure be only Capillary and Superficial, and hard to be found out; when the second Table is fractured, the first remaining entire; and when a Fissure or Fracture doth happen in an opposite Part to that which was wounded; any of these four being capable to deceive the best and most wise of Chirurgeons. And because this is a hard matter to cure, or undertake the Cure hereof, I shall enlarge somewhat herein both by Example and History, for the benefit of young Chirurgeons.

Ambrose Parrey writes of one, who having received ¹ History. a small Wound in his right *Bregma*, occasioned by the fall of a Stone thereon, the which made both a large Contusion and Tumour; and that it might more certainly appear, that if any hurt might happen to the Bone, the concrete Blood was forthwith cleansed and expressed, and the Wound laid bare by *Theodoricus*, an excellent Chirurgeon, and a Man of a good repute in his Art, who omitted nothing in this case his Art and Judgement could afford. Upon a fair Dilatation being made upon the *Cranium*, the Bone was found entire, yet a Fracture

was much suspected by him ; upon the receiving of which Blow, the Patient suddenly fell to the ground, and vomited, and had all the other Symptoms which attended Fractures in *Cranio*. *Parrey* being sent for, examining the cause of his Fall, upon a division of the *Petricrane* on the contrary side, and with the capital Saw being applied to the opposite part of the Wound, there was found a great quantity of Matter to issue forth, falling also upon the *Dura Mater*, and making an Abscess in the body of the Brain it self ; he had no Suture besides the two squammose Sutures : And hence therefore by *Hippocrates's* Authority, confirmed both by Reason and Experience, one Part may be fissured, whilst the opposite Part is only wounded.

2 History. *Nicolaus Florentinus* 7 *Sum. secund. Tract. 4. Cap. 1.* doth affirm, That he was an Eye-witness of this following History, which was of a certain Artificer, who being at his Work, was smitten with a Key in his right Temple, the which occasioned both a Contusion and a small Wound in that Part which was smote therewith, without any Cleft or Fissure. The Wound being dilated, nothing of Matter did appear ; at the 20th day a great horreur and Fever did invade him ; and on the 23d day a Livor and Gangrene seized him in his left Temple ; the mortified Flesh being wholly separated even to the *Cranium*, the *Cranium* it self was found fractured in the same place.

3 History. *Falloppius* also *cap. 14. Com. lib. Hipp. de Vulnerib. Cap.* writes, That he oft-times hath found by Experience in dead Bodies, who have died of Wounds received in their Heads, who in the wounded Part have had no Fracture, and upon opening the contrary side, he hath found a plentiful collection of Matter, and a large Contusion.

4 History. And in *Com. cap. 13. Hipp. de Vult. Cap.* he writes, That he saw in a Noble Scholar, who being wounded in the back-part of his Head by a weighty Weapon, where





where the mark of the Weapon was apparent, the Bone being deraded, so as there was neither seen either Cleft or Contusion. Upon further enquiry hereinto, the upper Table being entirely abraded, and coming to the second, there was found a great and large Fissure : And in all such cases he advileth , where any such large Wounds may or shall offer themselves, to abrade even to the inward Table.

And *Petrus Spererius* doth write of *Rinaldus Cortesius*, who had in his Study or Closet a *Cranium*, in which the lower Table of the *Cranium* was rent and lacerated, without any apparent or evident sign of Rupture or Laceration. The Fractures are thus set down : At A. *Contusio* ; at B. *Fissura* ; at C. *Teli Sedes* ; at D. *Excisio* ; at E. *Depressio* ; at F. *Concameratio* ; at G. *Collisio* ; at H. *Contrafissura* : And because both sides cannot be expressed by any Figure, where the Wound was given, and where the Fissure happened, I have in this last only expressed the *Rima* or Cleft.

CHAP. XXXIV.

Of Wounds of the two Meninges.

THE *Cranium* being ablated, and its diversity of Fractures discoursed of, we may find the Brain covered with two Membranes, indued with an exquisite sense : These by the Greeks being called *Meninges* ; by the Arabians *Matres*. And as we find the lower Belly cloathed with a *Peritoneum*, and the middle with a *Pleura*, so also may we see the Brain covered with two Membranes, stretched over the Cavities of the *Cranium*, Nature having formed these for the better conservation

Of the *Dura*
Mater.

of the Brain, they being constituted of Spermatick parts.

The first of these immediately planted under the *Cranium* is the *Dura Mater*, the which by *Falloppius*, *Bauhine*, and many other accurate Anatomists, is said to be framed of two Membranes; it receives into it Veins, and a few Arteries, these being constituted not only for the safety of the Brain and its Nerves, but also for the supporting of the two Brains, dividing also the medullous Matter into a right and a left side, and into an antierour and posterour Brain, the one being properly called *Cerebrum*, the other *Cerebellum*, the two sides thereof being divided by a *Falx*, the which hath allowed it four Cavities for the transition of its Vessels. The whole Brain is supported in that good order by this, and planted with that difference from the *Cranium*, that it may exercise its proper and free motion; and where occasion serves, it may be allowed to yield so fairly, that upon the application of the *Trepan*, it may with safety be allowed and performed by a dexterous hand, being guided by a solid judgement. Inwardly this Coat is light and lubricous, perfused with a waterish Humidity: Outwardly it is asperate and hard, enwrapping the *Cranium* and its Cavities, and adhering thereto by many small Fibres, sent through the serrated Sutures, out of which being expanded about the *Cranium* is framed the *Pericrane*. It receives its Arteries from the *Carotides*, and doth send forth a plenty of Ramifications of Veins, which it takes from the inward Jugular Vein; it's seen doubled in the Vertical part of the Brain, descending inwards.

Of the *Pia*
Mater.

This being artificially removed, we next meet with a *Pia Mater*; and this is a very thin Membrane, by *Galen* called λεπτή μώνυξ, the which he had from *Hippocrates* in lib. *Epileps*. where he saith, That λεπτή μώνυξ doth divide the Brain in the middle; it ariseth from the first
scatter-

scatterings of the Sperm, and doth immediately adhere to the Brain, containing the Veins and Arteries of the Brain in it ; it's substance is thin and soft, framed thin, that it may with ease insinuate it self into the Brain and its Cavities, and that it may expand its Vessels through its Body ; it is soft and of exquisite sense, because it communicates a tactile virtue to the Brain and its Nerves. Nature placed this, as *Galen* writes, 8 lib. de *Usu part.* between the Brain and *Dura Mater*, lest the Brain might be offended by so hard a Neighbour ; and as *Plato* writes, even as a Medium between Fire and Earth, these being of a contrary Quality, the Almighty hath interposed Water and Air. Even thus the Brain and the *Cranium* being of a different nature, mould and substance, Nature hath put these two Membranes between, and that we may admire the sagacious foresight of Nature in her operations, we may see how admirably she hath wrapt up the Brain in this *Pia Mater*, and how she hath compassed this with a thicker Membrane.

And having thus given you the brief Discourse of the Anatomy of these two parts, we are now to enquire into what prejudices these may be brought, for they may suffer both Pain, Inflammation, Apoftemation, Blackness, and the like.

Where therefore the Membranes of the Brain are hurt, there generally attend thereon great Pain, after which follows a Vomiting, sometimes *Delirium*, Convulsion, Redness of the Eyes and Face, and as *Galen* writes, the Stomach doth share with the Head in its griefs, and the Head with the Stomach, by a consent of the descendent Nerves being placed at its mouth ; and hence doth follow a loss of Appetite, and a weakness both of the digestive and expulsive Faculty ; a redness of the Eyes must follow, for their Coats have their Originations from the Membranes of the Brain, a Fever also succeeds, by reason of the exagitation of the animal Spirits lodged in

Of Wounds of the Head.

in the Brain, and these accidents are greater or smaller, according to the greatness or parvity of the hurt. And because the *Pia Mater* is seldom hurt alone, but the Brain doth share and communicate with it in its harms, hence doth oft-times follow an *Apoplexy*, loss of Voice and Reason; for the *Pia Mater* being hurt, the Brain it self doth soon decay, it being chiefly made of Veins and Arteries, through which are carried the vital Spirits prepared in the *Rete Mirabile*, or according to those which are made animal; and these do not only cover the Brain, and nourish it, but also pass into its Venters, and by or through its Orifices are its vital Spirits conducted into the body of the Brain; and hence happens loss both of Speech and Reason.

If therefore you perceive that there is an immoderate Flux of Blood upon the Membrane's being wounded, you are speedily to prohibit it, that you may come to the Membrane it self. And because Pain is here a very troublesom Companion, allay and abate this next, both for prevention of Inflammation and Convulsion: And for this may you use Oyl of Roses, Oyl of St. John's Wort, Oyl of Myrtils; these or any thereof to be applied warm to the Membrane. *Forestus* doth order, That in Wounds of the *Dura Mater*, for the first 4 or 6 days the whole Head is to be anointed with Oyl of Roses, and after that time to apply *Unguentum Matrisilva*, thus made:

Unguent. R *Terebinth. venet. Resin. pin. Cer. nov. an. ℥iiij. Ol. Rosar. ℥ss. pulv. Mastich. Thur. an. ℥j. gum. Elemni ℥ij. pulv. Matrisilv. Betonic. an. ℥iiij. Matrisilv. & Betonic. impo-
nentur in infusione in Vin. opt. ℥x. per diem: postea adde ca-
tera exceptis gum. Elemn. Mastich. Thur. & coquantur for-
titer ad Vini medii consumptionem, ut mixtura sit coloris
viridis, & tunc coletur, & demittatur coagulari, sepe co-
agulum à Vino, & totum coagulum accipe. & iterum in ca-
cabo impone, & coquantur ad Vini consumpt. hoc peracto
iterum cola, cui colatura adde Gummi semper agitando dum
optime*

optimè incorporantur. This is to be applied for 9 or 10 days; after which time lessen the quantity of the Oyl, and increase the quantity of *Mel Rosarum*; so as about the 14th day this is altogether to be used, and then with astringent Lotions and Powders compleat the Cure.

In a large Flux of Blood *Galen's Restraining Powder* may here safely be used: *R. Alo. ʒj. Thur. ʒij. pulverifentur subtilissimè ovig; albumine subactâ pulv. Leporin. excipiantur & imponentur.* After which may be applied this Dressing: *R. Colophon. ʒij. Myrrh. Alo. Mastich. Sangu. Dracon. an. ʒj. Croc. ʒj. Sarcocoll. ʒss. misce, fiat pulvis;* mix this with Syrup of Roses, and apply it to the divided Membrane, over which apply *Empl. Diapalma.* The Matter being well digested, this is to be expurged and deterged either with *Mel Rosarum*, or Syrup. *è Rosis siccis.* Or in this case may you use this of *Ambrose Parrey*: *R. Mel Rosar. ʒij. farin. Hord. pulv. Alo. Mastich. Ireos, an. ʒss. Aqu. vit. parum, fiat mixtura.* In this case also may this be safely used: As to take Oyl of Turpentine with Aqua-vitæ, and Powder of Aloës, and a little Saffron; this being accouted an excellent Medicine for drawing forth any Matter.

Galen's Restraining Powder.

The *Dura Mater* being inflamed, you may use this: *R. Sem. Lin. Psyll. Rosar. Rubr. an. ʒj. Solan. Plantagin. an. M. j. coquantur in aquâ fontin. & fiat fons.*

Inflammation of the *Dura Mater.*

Where any grumous or clotted Blood appears, this is accounted very good: *R. Spirit. Vini ʒij. pulv. gran. Tinctor. ʒijss. Croc. ʒj. Mel Rosar. ʒss. Sarcocoll. ʒij. coquantur omnia leviter, & colatura infundatur super Membranam donec nigrities oblitterata fuerit.* And for cleansing the Membranes if they putrifie, use *Aqua vite*, with *Mel Rosarum.* Or if this be not strong enough, add hereto Syrup. *Absinth.* with a little fine Powder of Myrrh and Aloës. *Galen* doth prescribe as an excellent Medicine the Juice of *Calamint*, for the uniting of a divided Membrane, sprinkling hereupon a little *Farin. Milij,*

For Grumous Blood.

Of Wounds of the Head.

Milij, this moderating the heat of the Juice. And because Wounds of the *Pia Mater* do generally prove mortal, the Brain hereby being brought into trouble, being exposed to the Air, this easily corrupting it by external cold, extinguishing the heat of the Brain: And yet because these Wounds are sometimes cured, you are also here ordered, if any large Flux follow hereupon, to stop it with the aforesaid Powder, and then to dry up the Wound by *Sarcoticks* and *Epolanticks*.

I shall end these two with some Historical Observations.

The First shall be of Matter collected or gathered between the *Dura* and *Pia Mater*: And this was of one, who having part of his *Cranium* cut, so as that the *Cutis* and Flesh did closely adhere to the Bone, his Head being shaved, and convenient Remedies being prescribed, part of the Bone being laid bare, was sprinkled with *Cephalick* Powders, the Wound followed with Digestives, and a convenient Diet ordered. On the third day an intolerable Pain seized him, with Vomiting, Convulsion, and a redness of his Eyes and Face: Hence was suspected Matter to be contained between the *Cranium* and *Dura Mater*, or between that and the *Pia Mater*. Wherefore the *Cutis* and the *Pericranium* being separated from the *Cranium*, with the capital Saw some part of the Bone was taken out, so much as necessity required; the *Cranium* was dilated (not with the *Trepan*, because the Wound and Fracture happened near the Sutures) and nothing of hopes of any recovery appeared, but the *Dura Mater* seemed to be elated into a Tumour, the which with a dextrous hand, and a crooked Incision-Knife, was dilated, not hurting the *Pia Mater*. Which done, much Matter issued out, which was inwardly collected, and to the Part affected was applied this following Medicine: *R. Syr. Rosar. siccar. ℥℔. de succ. Bettonic. ʒvj. Ol. Rosar. complet. ʒj. pulv. Sang. Dracon. Mastich. an. ʒj. misc;*
the

the which was continued, until the Matter was wholly discharged, both out of the capacity of the *Cranium*, and also out of the lips of the Wound : Then by applying Incarnatives and Epolonticks , he was perfectly recovered.

Dodonaus writes of one, who having received a Wound ¹ *History.* in the upper part of his Head, in the left side thereof, by a retuse Instrument of small weight, and no ways suspected to be dangerous, the *Cranium* being supposed to be whole, and no ways violated, and so negligently cured ; the Distemper increasing on him, within a few days after was seized with a stupidity and his Pulse grew very small and quick, he not being very capable to give a good answer to a question, and in a small while the right side of his Head became resolute, the left receiving the Wound. Hence followed a pernicious sopor and stupidity ; the *Cranium* being sublated, the *Dura Mater* was found livid in the left side, and the Brain in that Part sphacelated, the right side of the Brain being scarce hurt or injured, the whole Head having in it neither Fissure nor Cleft.

Amatus Lusitanus Cent. 2. Cur. 83. hath a remarkable ² *History.* History ; which is of two young stout Men, who fighting a Duel out of the City of *Rome*, the one stabbed the other through his Forehead, of which Wound he fell down to the ground, and there was left as a dead Man ; being found thus by Spectators, that he might escape if possible with these Wounds, from the jaws of death, although small hopes were given hereof by the consent of Chirurgeons , who were engaged upon consultation about him, presaging that there were but a few hours between him and the Grave, the Wound being both a horrible and penetrating Wound, and generally believed that it had penetrated the substance of the Brain. But contrary to their verdict and presage, without any ill Symptom happening, within 50 days the Patient was
A a cured ;

cured; and although the Wound had penetrated between the Ventricles of the Brain, yet they might remain unhurt, and the substance of the Brain not much injured hereby, although it had passed either Membrane, as it did this Patient's.

Note. Hence therefore may all young Chirurgeons note, who have the humane Body to practise on, that they be well skilled in Anatomy and knowledge of the Parts, lest for want hereof, they be like a blind Man shooting at a mark; and if they guess aright, it is as uncertain to the one as the other, none indeed which practise so blindly, deserving the Name of a Chirurgeon, nor may the Patient expect to receive any comfort or help by them or their pretences.

CHAP. XXXV.

Of Wounds of the Brain.

WE come now to the body of the Brain it self; the which also we shall first consider by an Anatomical examination, before we treat of its hurts. And here may we with *Aristotle* premise, in *Lib. 2. de partib. Animal. cap. 7.* That all such Creatures as have Blood in them, have also a Brain allowed them. It is called *ἐγκέφαλος*, because it is contained *ἐν τῇ κεφαλῇ*, in the Head. It is generally allowed the principal part of the Body, proved both by its situation, figure, and defences; and also in respect of its uses. As to the three first of these, I have already discoursed; and as to its use it's most excellent: For as *Varolius* saith, The Soul of Man being not tyed to any bodily Instrument, cannot apprehend those outward things which
are

are without it self, unless it be by the mediation of a Corporeal Organ, into which the Species of forms of material substances may be transmitted, by which afterwards they may be exhibited, and in which place they may both be apprehended and contemplated. Hence therefore who will deny that the Brain is the most noble of all the Members, seeing it is the Seat of all the Animal Faculties, Imagination, Sense, Discourse, Reason, and Memory ? And hence *Aphrodisæus* calls it ὄργανον τῆ φρονήσεως, the Organe of Wisdome. *Homer* calls it ὕψαρος, the *Heaven* ; hence coming all Sense and Motion which is bestowed on the subjacent parts. It is situated in the Head as in its Castle ; and in the Upper part as being the Palace of the Soul. As to its Magnitude and Connexion, it is generally found in Man of a great quantity, because it being the Instrument of his Reason, it is necessary it should require and contain in it a plenty of spirits : It's knit to the *Cranium* by Veins, Arteries and Nerves, with the rest of its parts : As to its Substance, it is made of Sperme and the maternal Blood ; and out of these two is generated this glandulous matter. It is generally white from its spermatick matter furnished with many spirits : It is soft, being the Original of the soft Nerves ; in its *Cerebellum* it's not so soft, this being the Origination of Nerves which are more hard : It is of a cold and moist temper ; and *Hippocrates* in his Book *de Carnibus*, calleth it μητρόπολιν τῆ ψυχῆ καὶ τῆ κολλώδους, or the chief Seat of cold and glutinous moysture, framed thus to hold and contain the subtile animal spirits ; and cold, for tempering their heat. I shall pretermit the divisions of the Brain, and its Coats, and come to its inward parts, where we may meet with it furnished with a callous body, two striated bodies, a *Thalamus Opticus Nervorum*, *Natiformis Prominencies*, *Medullary Processes*, *Glandula Pinealis*, *Orbicular Protuberances*, called *Nates*, and *Testes*, an *Infundibulum*, and a *Cerebellum* with

its substance and subtracted Cavities. All which may be seen at large in *Dr. Tho. Willis*, in his Book *De Anima Brutorum*: To which I recommend you.

Signs of a
Brain wounded

We come now to those hurts which the Brain may receive: And they may be said to come under these heads, as Wounds, Apostemations, Putrifaction, Syderation or Sphacelation, Concussion, and Tumour; and of each of these in their Order; premising first the true Signs and Symptomes which may direct us to the *Diagnosis* and *Prognosis* of the Brains being thus disaffected: And being guided herein by *Hippocrates's* Rule, my best and thy safest authority, as he hath it in *Aphor. 50. lib. 6.* if any have their Brains wounded, they must have here-with accompanied both Fever, and Vomiting of Choler; And in *Lib. 8. Cap. 4.* with these a loss of Speech: And such as have suffered Concussion, became Dumb, as he writes, *Sect. 7. Aphor. 58.* Then also are they generally senseless, and deliriated, and have a loss of their Sight, as he hath it, *Lib. de Vuln. capit.* thus expressing it, If the Brain be wounded, the reason growes weak, and other ill symptomes encrease; and sometimes part of the Brain comes forth with danger of loss of life. And besides these, if the Brain be wounded, the Matter which cometh forth will be thick, round, and of a marrowy substance. And as *Hippocrates* hath it, *Aphor. 18. lib. 6.* Wounds of the Brain if they have not reached the Ventricles, they are curable, although the substance of the brain it self be wounded; but these being wounded, the case will be dangerous. Besides these, upon the brain being wounded, you will find your Patient have a foaming at his mouth, a cloudiness overcasting his sight, a *Delirium* accompanying these, with a Convulsion, Fever, Vomiting of Choler, loss of Reason, Dumbness, a Palsie, and lastly see him correpcted with an Apoplexie.

Prefages.

As to the Prefages of Wounds of the Brain, the least is not seen to want danger, considering either the noble-
ness

ness of the part, and its necessity of motion, with its moyst nature, and the consent of the Nerves which it brings into misery and calamity with it. All these being considered with the not easie passage or entrance of Medicines to Wounds here received, may well grant these Wounds not easily to be Cured, nor yet to go without danger. Yet History makes good, that large Wounds sometimes being here inflicted, have been cured, as you shall see more at large at the end of this Chapter; and that chiefly in these three cases; As when they happen in a sound & strong body, meeting with an artificial dressing of this Wound; and lastly to the true Providence of the Almighty, who can as well lengthen the Lives of some, as shorten the same of others. And because my first Discourse is of Wounds of the Brain, by *Joan. Andreas a Cruc.* as he hath it, *Lib. 1. Cap. 14.* he will have the Wound washed with a Decoction of Roses, Myrtils, and Bettony, and if pain appear, to apply either warm milk, or else the luke-warm blood of a Pidgeon, or *Aqua Pimpinella*, and then untill the 14th day be past to dress it with Oyl of Turpentine and the Spirit of Wine. The Oyl of Turpentine he thus doth order to be made, *Oyl of Turpentine.*
R. Terebinth. clar. ℥ij. arena fluvior. depurat. lot. et sic.
℥i℥. Omnia in curua boccia cum suo recipiente ponantur,
& boccia in vase terreo, inter quod & Bocciam cinis in ea
adsit copia, quod nullo modo tangi possint, & lento igne fiat
elambicatio, & quod primo distillas aqueum est, & nullius
momenti, secundo coloris aurei ac densioris substantia &
optimum est pro usu. Also thus he orders it to be made,
R. Terebinth. clar. ℥ij. Later. recent. ℥℥. Mastich. Sty-
rac. an. ʒj. Lateres igniti Oleo extinguantur, & fracti reli-
quis Misceantur, & per Alembicum excipiuntur tres liquo-
res, quorum secundus & tertius sunt Optimi. Or he doth
advise instead of using of Turpentine and Spirit of Wine,
this; *R. Terebinth. aqu. consolid. lot. ʒij. aqu. vit. Syr.*
Rosar. an. ʒj. pulv. Oliban. Mastich, Myrrh. an. ʒij. Mum.
gran.

Of Wounds of the Head.

gran. Hyperic. Sangu. Dracon. an. ʒj. misce & fiat medicamentum, and apply it, over it to be applied *Empl. de Betonica*, anointing the whole Head over either with Oyl of Roses, or Oyl of Roses and Oyl of Myrtills mixed together; and this use for 7 days; and if no Matter or Digestion then appear, then with warm Water, Rhodomel, Myrrh and Aloes we are to dress the Parts, ever observing these Rules in Wounds of the Brain:

As touching Topical Medicines, that we have more regard to the Membranes, than to the Brain it self and hence are we directed to apply more drying Medicines, for the affected Parts do require the same, they being both of a moist, soft, and dissoluble substance and temper, and hence the more easily corrupted; and in these also are we not to proceed violently but gently, assisting Nature in the rectification of these noble Parts.

In these cases he also doth much commend this following
Decoction. *ing Medicine: R Vin. Montan. ʒxxx. succ. Betonic. ʒiij. succ. Calamenth. ʒij. Myrrh. Oliban. Alo. Mastich. Sangu. Drac. Centaur. minor. sem. Hyperic. an. ʒj. contundend. contusis macerentur omnia in vase probe occluso, tum lento & claro igne exhalet tertia pars ac coletur decoctum, cui adde Spirit. Vini ʒij. Ol. Terebinth. ʒiij. reponatur Decoctum in vase vitreo optimè clauso; and above this Liqueur to apply Avicen's Cephalick Powder, and to cover it with Empl. de Beronica, or the like.*

Fallopius in these cases, as you may see *Com. Hipp. de Vulner. Capis. c. 45.* doth order Oyl of Roses, and Oyl of Turpentine, to be used together in Wounds of the Brain; for as the one easeth Pain, so doth the other dry up the Humidities; and this to be applied till the 7th day be past.

And to prevent all Putrification, and to dry up all Humidities, *Read* doth much praise this: *R Vernic. alb. Balsam. nigr. Ol. Hyperic. optim. an. ʒʒ. misce.*

And

And to conclude this, Take some of these Observations, where we may see a great part of the Brain to come forth, occasioned by a Wound, and yet the Patients recovered.

And here may we meet with plentiful historical Observations; and the first *Fabritius Hildanus* hath, who being called to one *John Hortzman's* Sister, who having received a contused Wound in the right *Bregma*, with a Fracture and Impression of the *Cranium*, she presently hereupon vomited Choler, and indigested meat; the left side was resolute, having Convulsions in her right; her Head being shaved, several pieces of Bones came out, and others, much resembling a small Vetch, were drawn out of the substance of the Brain. The day following *Slotanius* his Master coming with him to view the Wound, upon dilating the Wound, were drawn forth many and small splints of Bones, and a part of the Brain, the bigness of a Hasel Nut; and thus was a small part of the Brain extracted at several times, yet the Patient recovered.

1 History.

Another of his is of a Countreyman, who having received a great Fracture on his Head, by the occasion of a small apparent Wound, being slenderly dressed he fell into a Fever, and grew delirious, the *Cutis* being incised in form of a **Y**; there was presently extracted three splints of Bones; and upon further search he found in the Wound a part of the Brain, the bigness of a Nut. His former Chirurgeon seeing this, despaired of his recovery; yet being assured, that great Wounds of the Brain have been cured by a diligent hand, by a care and true method, his Fever abated, and his *Delirium* vanished, and his relaxed side was cured.

2 History.

Glandorp. Obs. 5. writes of a Man, who had a great part of his Brain ablated, yet he recovered: And thus he hath it; A Countreyman being much wounded in the anterior part of his Head, out of which his Father in the

3 History.

Of Wounds of the Head.

the first days had drawn forth many great pieces of Bones, and such a part of the *Brain*, as is scarce to be contained in an Egg, in its middle. Herero having applied convenient Remedies, he was surprized with Convulsions, the which the 7th day had almost overcome him, and was correpted with a Palsey in his opposite side, yet he was cured of his Wound, and two years after died of the Pest, but scarce could endure the noise of Drums, Trumpets, or Guns.

4 History.

Nicolas. Ser. 7. Tract. 4. Sum. 2. Cap. 91. writes of a Man wounded in his Head with a Sword, which Wound passed even into the substance of the *Brain*, upon the *Vertex*, in the fore part of the Front, even to the middle of the Head. The day following he fell into a Palsey, and sent forth the superfluity of the first and second Digestion insensibly, and eat nothing for 6 days, and drank only cold Water with Syrup of Roses; and after the 6th day he desired Victuals, and did eat, and by a regular order and method he recovered.

And *Carpus* writes in *Tract. aureo.* that he was an Eye-witness of six Men, from whom a great quantity of the *Brain* came forth, and that were cured; of which, two were much taken with a Palsey on one side, yet lived two years, and the other he both saw and cured.

Brasavolus, Com. ad Aph. 18. Lib. 6. Hipp. writes, that he hath seen most strange Wounds of the *Brain* cured: In one especially he saw taken out as much of the *Brain*, as would fill a Pullets Egg, and yet the Patient recovered, but could scarce speak well, and grew afterwards stupid.

Another he writes of, who had almost half of his Head ablated, with a part of the *Brain*, and yet recovered; but at length grew so stupid, that he could not speak, nor understand.

5 History.

And to conclude this: *Horat. Augenius Lib. 9. Epist. 2.* writes, that he saw the whole substance of the *Brain* wound.

wounded, and its Ventricles dissected, and some part of the *Brain* came forth out of the Wound, and yet the Patient recovered. And these may be sufficient Authorities to confirm, that large Wounds of the *Brain* have been cured, being undertaken by a judicious hand.

CHAP. XXXVI.

Of an Abscess of the Brain.

THis is the Second Mischief which may happen to the Brain, yet many there are who deny any Abscesses can or may be made in the body of the Brain, and thus endeavouring to prop up their Opinions, do strive to bring many others into their Opinion and Errour.

But these both Authority and Experience do easily confute and contradict: For here first *Hippocrates* writes, If either Matter, Water or Blood, do flow through the Nostrils, Mouth or Ears, of any which is troubled with Pain in his Head, these will soon discharge it. And *Galen*, *Avicen*, and *Rhasis* do affirm, That Nature hath found out these as its most proper Channels, to empty and discharge its Excrements, and hereby to exonerate the Matter which is bred in the Brain.

And although this Event is by many Authors proposed desperate, yet *Franciscus Arcan* Lib. I. Cap. 6. doth relate some Stories, wherein he hath cured some People hereof, and doth bring in an Example of one who received a hurt at the City of *Valuerda*, ten miles from the Town of *Llerena*; (such a History he writes is not extant) who by the Divine Assistance, who gives the chief blessing to the means, was perfectly recovered: And thus it was; While some Workmen were at

B b

their

Of Wounds of the Head.

the first days had drawn forth many great pieces of Bones, and such a part of the *Brain*, as is scarce to be contained in an Egg, in its middle. Hereto having applied convenient Remedies, he was surprized with Convulsions, the which the 7th day had almost overcome him, and was corrected with a Palsey in his opposite side, yet he was cured of his Wound, and two years after died of the Pest, but scarce could endure the noise of Drums, Trumpets, or Guns.

4 History.

Niculus. Ser. 7. Tract. 4. Sum. 2. Cap. 91. writes of a Man wounded in his Head with a Sword, which Wound passed even into the substance of the *Brain*, upon the *Vertex*, in the fore part of the Front, even to the middle of the Head. The day following he fell into a Palsey, and sent forth the superfluity of the first and second Digestion insensibly, and eat nothing for 6 days, and drank only cold Water with Syrup of Roses; and after the 6th day he desired Viſtals, and did eat, and by a regular order and method he recovered.

And *Carpus* writes in *Tract. aureo.* that he was an Eye-witness of six Men, from whom a great quantity of the *Brain* came forth, and that were cured; of which, two were much taken with a Palsey on one side, yet lived two years, and the other he both saw and cured.

Brasavolus, Com. ad Aph. 18. Lib. 6. Hipp. writes, that he hath seen most strange Wounds of the *Brain* cured: In one especially he saw taken out as much of the *Brain*, as would fill a Pullets Egg, and yet the Patient recovered, but could scarce speak well, and grew afterwards stupid.

Another he writes of, who had almost half of his Head ablated, with a part of the *Brain*, and yet recovered; but at length grew so stupid, that he could not speak, nor understand.

5 History.

And to conclude this: *Horat. Augenius Lib. 9. Epist. 2.* writes, that he saw the whole substance of the *Brain* wound-

wounded, and its Ventricles dissected, and some part of the *Brain* came forth out of the Wound, and yet the Patient recovered. And these may be sufficient Authorities to confirm, that large Wounds of the *Brain* have been cured, being undertaken by a judicious hand.

CHAP. XXXVI.

Of an Abscess of the Brain.

THis is the Second Mischief which may happen to the Brain, yet many there are who deny any Abscesses can or may be made in the body of the Brain, and thus endeavouring to prop up their Opinions, do strive to bring many others into their Opinion and Errour.

But these both Authority and Experience do easily confute and contradict: For here first *Hippocrates* writes, If either Matter, Water or Blood, do flow through the Nostrils, Mouth or Ears, of any which is troubled with Pain in his Head, these will soon discharge it. And *Galen*, *Avicen*, and *Rhasis* do affirm, That Nature hath found out these as its most proper Channels, to empty and discharge its Excrements, and hereby to exonerate the Matter which is bred in the Brain.

And although this Event is by many Authors proposed desperate, yet *Franciscus Arcan* Lib. 1. Cap. 6. doth relate some Stories, wherein he hath cured some People hereof, and doth bring in an Example of one who received a hurt at the City of *Valuerda*, ten miles from the Town of *Llerena*; (such a History he writes is not extant) who by the Divine Assistance, who gives the chief blessing to the means, was perfectly recovered: And thus it was; While some Workmen were at

their Labours, about building a Tower in that City, a Stone falling from the rest, which was a Cubit in length and breadth, and 12 inches in thickness, and in weight 24 pounds: This Stone falling from the others, as it was hoisting up, fell down, and bruised, depressed, and shivered his Skull. Hereupon the Patient fell to the ground, and there lay near half an hour, and was given over for a dead man, being senseless, and was thence carried to his House; and hence followed commotion of his *Brain*, and for three whole days he not only lost his Speech, but Motion too; a great part of his bones of his Head were depressed, and laid upon the *Brain*, and blood flew both out of his Eyes and Ears; his Head and Neck was tumified, and looked of a black colour. After the 8th day, the Head opened spontaneously, both from the *Sinciput* and *Occiput*, and also in either side; and then three Apostemes brake forth, the Bones being restored to the proper places. The 3d day following his Speech came to him, although imperfectly, and his Eyes opened; and the 20th day following he began to see, and recover his senses, and within the space of four months he was perfectly cured, and being a young man was afterwards married.

And because Putrifaction and *Sphacelus* of the *Brain* are deadly Symptoms, and not to be found out by the opening of the Skull after the Party be dead, I shall not enlarge on these, save only I will conclude this Chapter with that of *Coiter. Lib. Observat. Anatom. & Chirurg.* who writes of having dissected many Heads which have been wounded, in which he hath found more than half of the *Brain* putrified, and the Ventricle on the same side to be accompanied with a fetid, green, and thick Matter, and to have seen in the Cerebellary Substance very putrid Apostemes.

CHAP. XXXVII.

Of Concussion of the Brain.

NExt follows a Concussion or Commotion of the *Brain*, occasioned by some outward violent cause invading the *Brain*, happening either by a Fall from a high place upon a hard part, being either stoney or rocky; or may be occasioned by a Shot, Lance, Bullet, Key, or the like: Hence also by this violent blow, or other the like Accident, the Veins and Arteries by this Concussion may be lacerated, and not onely those which do pass the Sutures, but also those which are sprinkled between the two Tables to the *Diplois*; hence also the efflux of blood running between the *Cranium* and the Membranes, or between the Membranes and the Brain, being there concentered, do occasion many dreadful Pains, and cause a blindness and a cloudiness over the sight, and Vomiting, occasioned by the upper Orifice of the Ventricle, being hereby affected by the Nerves of the 6th Conjugation, the which do pass from the *Brain* into it, and thence effused into the whole Capacity of the Stomach; and hence also are the other parts drawn into consent herewith: Occasioning vomiting of Choler, the *Bilis* in this case being more active, and encreasing in plenty; and this generally attends Concussion of the *Brain*. Then meet we with Inflammation correpting the *Brain* it self, the which the corrupted and putrid blood doth excite, drawn forth from the Lacerated Vessels by the violence of the accident, and effused through the whole substance of the *Brain*; and this kind of Inflammation doth procure a Fever by communicating it self to the Heart and to the whole body; and if it proves vehement, it proves both dangerous and

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mortal; if the commotion be violent, it causes a dumbness and loss of speech in the Party. And as *Hippocrates* writes, *Lib.7. Aph.78*. They who have endured a long Concussion of the *Brain*, must of necessity become dumb. And if to these Evils a *Sphacelus* and corruption should succeed, with a difficulty of breathing occasioned by an Impediment of the Animal Faculty, Death doth suddainly follow.

Having given you the chief Signs and Notations of a Concussion, as touching its Cure, we are ordered (because in a Concussion of the *Brain* the Vessels are seen to be Lacerated under the *Cranium*) to breathe the *Cephalick* Vein, and to take away a plentiful quantity of blood, and to order a good and thin Dyet; and as touching the affected part, the Head being shaved, there may be applyed according to *Ambrose Parrey's* direction, a Cataplasme made of Bean-Meal and Barley-Meal, with Oyl of Roses and Oxymel. Not to apply any cooling restraining Medicines here, these hindring the breathing forth of the fuliginous vapours by the Sutures, the body is to be kept open by sharp Clysters to prevent the ascent of fumes and vapours up the *Brain*. And if the Patient be of a Plethorick Constitution, to repeat Phlebotomy, by breathing either the frontal vein, or that under the Tongue. Cupping-Glasses are here also very necessary Instruments, being applied to the *Scapulae*. Repulsives are here to be used to the 4th day, then to use Discussives, beginning with such as are milde, and of a gentle nature, as is this Decoction, *R. Rad. Alth. ʒvj. Ireos Cyper. Calam. aromatic. an. ʒij. fol. salv. Beton. Marjoran. Melilot. Rosar. Rubr. Stachad. an. M. B. Sal. commun. ʒiij coquantur omnia simul. S. A. in vino Rubro & aqu. fabror. fiat Decoctum*. With this the head is to be fomented twice in a day, by dipping a Sponge herein, and applying it to the affected part. But this is to be premised, That we be sure not to apply any thing too hot

Decoction.

hot here, lest hereby we purchase Pain and Inflammation.

Then to apply *Vigo's Cerote* thus made; *R. Furfur. bene trisurat. ʒ iij. farin. Lent. ʒ ij. Rosar. Myrtillor. fol. et gran. ejusd. an. ʒ j. Calam. Aromatic. ʒ j. Chamomel. Melilos. M. B. Nuc. Cupress. No. 6. Ol. Rosar. Chamomel. an. ʒ ij. Cer. alb. ʒ ij. B. Thur. Mastich. an. ʒ iij. Myrrh. ʒ ij. pulverisentur, et liquefactis Oleis cum Cer. misce Omnia simul in formam Empl.* Vigo's Plaster.

I cannot let that most Admirable Medicine pass, for its worth, which hath for many years been experienced by my Honoured Uncle *Cropp*, and his Ancestors; a most true and happy Composition in these direful cases; of which I have with admirable Success had the advantage to speak the truth of it. And indeed I dare boldly assert, there cannot be a better extant in all Fractures of the *Head*, and Concussions of the *Brain*, being thus both rightly made and applyed; The Composition of which is this; *R. Farin. Fabar. Furfur. an. ʒ iiij. fol. Rosar. Rubr. fol. & Bacc. Myrtillor. an. ʒ B. Squinanth. Stechad. an. pug. j. fl. Chamomel. Melilot. an. M. B. Sem. Coriand. Anis. an. ʒ iij. fl. Betonic. Matricar. Aneth. an. pug. j. Summitat. Absinth. M. j. pulverisentur omnia et misceantur cum vino malvatico lb j. ad Catapl. formam; in fine ebullitionis adde Ol. Chamomel. Aneth. Myrtin. an. ʒ j. Cer. flav. ʒ j. Croc. ʒ j. pulv. Calam. Aromatic. ʒ B. misce; fiat Cataplasma.* Before the application of which, the Wound is to be dressed, and the Head to be anointed all about the affected parts with Oyl of Roses, Oyl of Dill, and Oyl of Myrtles; then to be covered over the wounded part with *Empl. de Betonica*; and then apply over all this Cataplasme.

I shall adde here some Histories of Note; and here first we may see *Dodonæus* writing, *Cap. 1. Observ. Medicinal.* of one who having received a blow on his left part of his head with a thick Club or Staff, the *Cutis* being Histories.

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being whole, and no sign of hurt appearing, the Petrose bone underneath being fissured, and having a long cleft; hence followed a stupidity, but not so deeply but upon being called he could stirre himself, but suddainly fell into a slumber again with his Eyes being shut; and untill the 14th day was past, his stupidness encreased so as that he could not stirre, after which Death seized him, his head being opened, the *Dura Mater* was seen altogether suffused with blood under the *Os Petrosum*, and a purulent Matter about the Brain it self.

Another.

Fabritius Hildanus is very plentiful in Histories of the Brain being Concussed, amongst which he hath these, *Observ. 13. Lib. 1.* The first is of a Gentleman, who being smitten in the right part of his head fell upon the ground, vomited, lost his Speech, and bled both at his Ears and Nostrils, who being carefully handled, was perfectly recovered, and his speech in few dayes returned to him.

Another.

The Second is of a Huntsman, who falling from a Tree upon the ground, presently vomited, and cast forth much blood both through his Ears, Mouth, Nostrils and Palate; hereupon he grew dumb, and was Apoplectick without sense or motion even to the 11th day; his head being shaved, and anointed with Oyl of Roses and Oyl of Myrtles, and a Vein opened in his Arm, with sharp Clysters being administred, and the like proper Remedies, by God's assistance and his diligence, to admiration he recovered.

Another.

And to Conclude, *Alexander Benedictus, Lib. 1. Cap. 5. De Medend. Morb.* writes, That if we may believe Experiments, the Leaves of Ground Ivy put between the Membranes of the Brain, do ease pain, if they be soft, mixed with a little Vinegar and a Decoction of Roses. Hence some of our late Writers do order a Cerote made of *Gum. Hedeta*, whereof this is the Receipt; *R. Gum. Heder. ʒ iij. Resin. purgat. ʒ ʒ. Cer. ʒ iij. Ol. Rosar.*

Empl.

ſar. ʒ ij ʒ. *Ammoniac.* ʒ ij. *Terebinth. Venet.* ʒ iij. *Succ. Corymbar. Heder.* ʒ iij. *Farin. Fabar. Q. S. fiat Empl.*
And this hath been approved to be excellent in Wounds and Fractures of the Head, eſpecially in an Old Man of Eighty years of age, who being ſmitten by the Beam of a houſe falling upon his head, he hereupon grew ſpeechleſs, he being forthwith let blood, and this Plaſter applyed to his *Bregma*, he lived without Wine and Fleſh, and ſubſiſted with *Ptyſan* and broken bread, without any Liquor or Water; for he loved none: And thus for 15 dayes was his life conducted; with loſs of Speech: The 16th day he began to ſpeak, and within few dayes after was perfectly cured of his violent Concuſſion, beyond all hopes.

CHAP. XXXVIII.

Of a Fungus of the Brain.

THis *Fungus* is a Tumour of the *Brain* much reſembling a Muſhroom; of which ſort ſome are ſeen to be hard and bloodleſs, accompanied but with ſmall Senſe: Others more ſoft, and endued with an exquisite Senſe, being of an ill Smell, broad above, and narrow beneath, bred of glutinous and thick humours, being half rotted; ſo made either by the Aire, or coldneſs of the Skull, it being opened, and the *Brain* wounded. Theſe alſo are reported to be of a very ſpeedy growth, much like Muſhrooms, having their encreate from a plenty of thick humours iſſuing from the affected parts. In theſe

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these cases we are advised, if it growes above the *Cranium*, to keep it down by a strong Ligature, and to consume the remaining part, taking care that we in these cases do not use too strong Cathartick Medicaments.

And because *Gulielmus Fabricius*, a man of excellency in his Art, and a Master to be followed, hath given a lively Example of the curing of these *Fungosities*, I shall commend you to his Method, & for satisfaction shall present the whole History, as he hath it in *Observ. 15. Cent. 1.* of one of 14 years of age, who received a Wound in his Right *Bregma*, with a large Fracture of his *Cranium* by the Fall of a Stone from a high place, which weighed Twelve pounds ten ounces; he being thitherto called, he finds the Boy speechless, blind and deaf, with a vehement Vomiting, and a continual throwing forth of blood both by his Mouth, Ears and Nostrils, his head being shaved, and the Wound dilated, the *Cranium* was seen to penetrate deeply into the substance of the *Brain*, and the *Dura Mater* much rent: The Splints that Night being taken out, the Cure was treated with art; and although the Symptomes were so direful, that there was but small hopes of his recovery, yet within 20 dayes these vanished, and the part of the *Dura Mater* rent by the depressed Skull did fall out by Nature and the benefit of Medicines, which gave encouragement of danger being past. But the 21th day a new Evil attended him, which was a large *Fungus* arising from the Wound, the which so encreased in Twenty four hours, that it exceeded the bigness of a Hens egg; the which was cured by these following Medicines: Ordering him this Clyster in the beginning every day, afterwards every second or third day; *R. Rad. et fol. Alth. Malv. Parietar. Mercurial. fl. Cham. Melil. fol. et flor. Betonic. an. M. S. Sem.*

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Sem. Fenugrac. Anis. Lin. an. ʒ ʒ. coquantur in aqu. ad consumpt. 3. partis in 1b j. colatura salua Benedict. Laxat. & spec. Hier. Picr. an. ʒ iij. Vitell. Ov. j. Sal. pug. j. Ol. Camomel. ʒ ij. M. fiat Clyster.

Then was applyed this Fomentation twice a day to the Wound; *R. Fol. et Fl. Betonic. Salv. Camomil. Melilot. Rosar. Summitat. Marjoran. Rorismar. an. M. j. Sem. Anis. Fanugrac. an. ʒ j. incidantur et contundantur pro foru.* Fomentation.

After this let the Head be cleaned with warm cloathes, after which let the *Fungus* be all over it sprinkled with this following Powder, and also the Wound; *R. Rad. Caryophyllat. Angelic. Calam. Aromatic. an. ʒ ʒ. Rad. Aristoloch. Rot. Irid. florent. Lign. Guaiac. an. ʒ ij. fl. Salv. Summitat. Marjoran. Rorismarin. an. pug. j. fiat pulvis.* Powder. Over which was applyed this Emplaster, *R. Empl. de Betonic. ʒ iij. Gum. Elemn. Solut. in Ol. Rosar. ʒ j. pul. Rosar. Myrtillor. an. ʒ j. Mastich. Calam. Aromatic. an. ʒ j. ʒ. cum q. s. Ol. Rosar. fiat Empl.* Empl. With these the *Fungus* vanished in 14 dayes, and within 10 Weeks the Patient was perfectly recovered.

Cornarius Emblemata. 71. ad lib. 4. Dioscord. writes of a Citizen who before he arrived at 40 years of age, had his Skull in the publick Market chopt edged wayes, and his Membrane hurt; and he carried 6 Fungosities in his head for a long while after, the bigness of so many great Nuts as we call Chesnuts, the which within some while afterwards fell away of their own accord. Another.

Johannes Schenkius writes, that he remembers a Boy who falling from a Ladder, upon his head, received thereon a large Wound in the left part thereof. An ignorant Quack being sent for, not examining the hurt of his head thoroughly, hastened the Wound to agglutination, whence happened, that between times for some years afterwards the Boy felt a pain in his head, as

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if he had been smitten with a Key, and within some time afterwards out of the same part did grow a *Fungus* equalling the bigness of a Chelnut; hence followed a violent Fever, and an intolerable pain of his head; the skin of the head of its own accord being disrupted, the whole Tumour without any difficulty, and as it were cut off with a Knife, opened, appearing as it were of a horney substance, coagmentated in several coats, and incruusted much like the stone in the Bladder, generally believed to be occasioned by the Fall upon the head, and of the hurt of its substracted Membranes.

Thus have I ended the whole Discourse of the *Head*, with its Membranes, and those diversities of evil Symptoms which do attend the *Brain*. And although Wounds of the *Nerves* might by some look better in other places, and more aptly be placed according to the places where they are most generally injured; yet because they have their Origination from hence as their Fountain, I shall discourse of them here, and also shew you how Nerves punctured, contused or incised, are to be Cured, intending to joyn Wounds of the Arteries with those of the Heart; and Wounds of the Veins with those of the Liver. These being as their chief Oceans from whence they fetch both their Vital and Natural Blood and Spirits.

CHAP. XXXIX.

*Of Wounds of the Nerves, made
by Puncture.*

AND because these Nervous Bodies are Parts of great worth and use in us, whose hurts and mischiefs, without a true method ordered and prescribed, do yield most horrid Symptoms, how well ought the Chirurgeon to examine and know their Nature, Temper and Fabrick, that hath to deal with them, being either punctured, incised, or contused?

And that I may bring in this Discourse with the best advantage to the young Chirurgeon, I shall first shew by the Glāss of Anatomy what a Nerve is; how it differeth from a Tendon and a Ligament; for what use it was framed, and to what end it was constituted; how it is planted into the Muscle, and there doth exercise its moving Faculty: And then having given you its view, you may consequently judge how careful and active you ought to be, in the treating its harms and hurts.

But to shew what a Nerve is.

A Nerve in general is called *Νόσσον ἀπὸ τῆ τεύειν*, *flectere*, by some called *τόνος ἀπὸ τῆ τεύειν*, *tendere*, being planted at the end of the Muscle, both for its extention and contraction.

What a Nerve is.

Of these Nervous Bodies are reckoned by *Galen* three kinds (*viz.*) Nerves, Tendons, and Ligaments. Of each of these in their order.

It's called an Organick Part, being an Organ conveying animal Spirits; it's made of a white Substance, spun and wrought out of many small spermatick Fibres, constituted with most subtil Pores, for transition of the animal

An Organick Part.

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animal Spirits ; it is made of a threefold Substance ; the first being medullary and white, arising from the marrow of the Brain ; the second and third gives it its double Membrane, investing this Substance : And considering all Nerves do take their Originations of and from the Brain, and as *Piccolhominus*, *Baughine*, and other expert Anatomists do write that from the medullary Part hereof, doth pass hence through the Cavities of the *Cranium* and *Vertebres*, and so descending forwards. And as also some of these Nerves are soft and others hard, as I have already shown, some being most necessary for conveying of the animal Spirits, so by their ordinary Influx a Nutrition doth follow, and by this Influx the Parts ordained for sense and motion may the better be moved, and more exquisitely be allowed to receive their sense. And because they are the proper Trunks and Channels, by which the animal Spirits are carried and conducted to the instruments of voluntary sense and motion, their Membranes being the instruments of these senses, the which by how much they receive a greater quantity of Nerves, and so consequently animal Spirits, they most exactly and exquisitely receive and obtain a more liberal plenty and freedom of motion and sense.

What a Tendon is.

Caspar Bauhinus will have a Tendon to be a similar Part, continued from the beginning to the ending of a Muscle, being of the same kind and nature with that of the Nerves, and bred out of seed, as are the other spermatick Parts, which opinion is continued by many at this day.

Andreas Laurentius, with *Galen*, and others, are of a contrary opinion, allowing this to be a dissimilar Part, framed and intertexted out of the concurrence of most thin Fibres, Ligaments and Nerves interwoven together ; it assuming its greatest bulk from Ligaments, and a lesser from the Nerves and their Fibres. And because provident Nature being careful to leave no empty space
between

between these Fibres, she hath planted a fleshy Substance between their Series, where we may meet with its empty spaces filled and stuffed up therewith.

To conclude this, A Tendon is nothing else than the fibrillous Substances of Nerves expanded and exploded, made and framed much in form of your *Indian* Hammocks, which are interwoven of fine Thread or Silk, whose middle Part although expanded and filled up by the intertexture of their woollen Parts, yet are contracted in either end, and brought into a smaller and slenderer Substance, by the advantage of so many fine Chords interwoven and brought to one point.

A Ligament is the 3d; and this by the Greeks is called *σύνδεσμος*, or *Vinculum*, both by *Hippocrates* and *Aristotle*; from its figure and colour it is called *Nervus*, it being a cold, dry, firm, and similar Part, yet loose and flexible, collected out of many Parts; it gains its Substance from the seed, as do the two former, bred between a Membrane and a Cartilage, harder than a Membrane, that it may not easily break, and softer than a Cartilage, for a more prompt motion of the Muscles; it is not nourished by Marrow, as *Columbus* conjectured, but with blood passing through the capillary Arteries, this being either large, narrow, plain, long, or short, in figure according to the variety of the Parts; it ariseth from the Bone, and is inserted therein; its Uses are chiefly two, that hereby the Members may obtain a good and proper motion, and also in their motions that they do not recede from their places, or that in a violent motion they may be kept in their proper places.

What a Ligament is.

And since we have presented a short view of these three, we may fairly by a brief Discourse express their annexions: For as every Muscle hath allowed it a Nerve, some having more, as the *Diaphragma*, and the temporal Muscle three. *Galen* therefore doth nominate that Part wherein the Nerve is inserted, the Head of the Muscle;

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Muscle, the middle Venter is the fleshy Part thereof, distinguished into many tendinous Intersections, the Tails thereof being tendinous, annexed to the moving Part thereof, the which do much vary, according to the strength or small motion of the Parts, both in Form and Magnitude, being either narrow or broad, long or short, thick or thin.

Now as touching the Hurts of these Parts, and these are generally accounted Four, as Puncture, Incision, Contusion and Distortion.

Puncture of a
Nerve.

Prefages.

We begin first with a Puncture of the Nerve: And here may we see these little Bodies, being endued with an exquisite sense, they being hurt, must necessarily threaten danger; for slight and slender Hurts here do produce Spasmes; and these happen by Pain, the which doth lead the whole Body into intemperiety and passion. Fissures of the Nerves are hard to cure, by reason of their cold nature, being in substance both cold and exsanguial, their Humidities admitting no digestion. Such as are transversely wounded, are more dangerous than those which are hurt in a direct line; for hereby both Sense and Motion are destroyed at once, and therefore are to be suspected. Contusion happening here doth produce its effects also, by reason of its thick and viscous humour, which doth replenish them, and makes them fit for putrification, they being denied their native heat, and hence follows Inflammation and Putrification at the beginning.

Cure of Nerves
in general.

As to the Cure of Nerves in general, here is chiefly to be studied the removal of Pain and Inflammation: And for these a good order of Diet, a subtraction of the antecedent Matter, that it flow no further to the affected Part, and application of convenient Topicks for asswaging of Pain, educing of Excrements, and vindicating of the Parts from Convulsion; these are good and proper Engines to work with.

But

But to come to each in their order, and to begin with
1 Puncture of the Nerves.

The wounded Nerves do require very drying Medicines, having an attractive quality in them, being of thin Parts. Now whereas this is an accident, which doth most commonly happen to them, by the ignorance of the Chirurgeon sometimes, as well as by the assault of some violent Thrust, Puncture, or the like; here are two scopes to be prescribed: The first of which toucheth the Part affected, which is to be treated with strong drying Medicines, and such as may ease Pain; and the second to hinder Inflammation. The Nerve therefore is to be opened, and its thin and humid Substances to be dried up, which do procure the inward injury; and for this Use you are to apply hot Medicines, for the educeing these Vapours, attracting of the Humidities about the affected Part. And here be sure before you undertake any application, that you remove and extract all extraneous Bodies, which may lodge in the wounded Part, if any remain therein, as Needles, Glass, Bone, Splints of Wood, or the like, hereby taking care that we add no affliction to the afflicted Part. Hence are we by *Galen's* Authority here directed for Women, Children, and the like persons who are tender and soft, to use Turpentine by it self, or to mix therewith Sulphur or *Euphorbium*. And to hinder Inflammation, is a great intention in Punctures of the Nerve; and this is to be conquered by Phlebotomy, once or more times to be made use of, as occasion may require, hereby to discharge a good quantity of the Blood, both for prevention of Fever and Inflammation.

Next may we storm this by Catharticks, which have power to banish it by siege, by first preparing the Body with *Mel Rosarum*, *Syr. de Betonic*, *Oxymel*, or the like; then to prescribe a convenient Cathartick, made either of *Cassia*, *Manna*, *Rhubarb*, *Senna*, *Confectio Hamech*.

Of Wounds of the Nerves.

Hamech. Diacatholicon, Elect. & succ. Rosar. Pil. Coch. Rudii, or the like. And here also as to the affected Part, we are here to consider both the breadth and narrowness of the affected Part, and its Wound; for if the Wound be so narrow, as that the Matter cannot have vent for its exition, and the strength and force of the Medicine cannot reach the Puncture, here are we to dilate, and make the Wound wider, by cutting it so wide, as the Nerve may well appear; if the Wound be large enough, we are here to view the Symptoms which attend and offend; and here if Pain offers, this is to be abated: And for this purpose *Galen* proposeth Oyl warmed, and with this to foment the Part; and hence is it also that we always use hot Oyls in Punctures of the Nerves, for this doth speedily make Pain cease and vanish. But some may seem here to quarrel with *Hippocrates*, who writes, That Oyl is humecting and mollifying, and so an enemy consequently to the Nerves, which do require drying Medicines, and therefore how to be approved of in these cases? It's true it is softning and humective; yet we find that a punctured Nerve being kept for 2 or 3 days in Oyl, hath not received any injury thereby, but hath hereby rather gained a large mitigation of Pain, and therefore in respect of the Symptoms is advantagiously here to be used, the Pain being abated. Next indeed in respect of the nervous Substance being cold and dry, we are authorized to use hot and dry Medicines; dry, that they may keep up and maintain the proper temper of the Nerves; and hot, that they may take off all cold from them; the true temper of these Medicines are to be very drying, and moderately hot. In a punctured Nerve we may also note, That the Nerve which is thus punctured, can endure the most hot Oyl, which the Finger cannot. Whence I collect, That a Nerve hath not in it a most exquisite sense, but only an exquisite sense; and therefore all such Medicines which are here to be applied, should be

be freed of all asperity and sharpness; and the substance of the Nerve being hard, the temper of the Medicine should be thin and penetrating.

Another thing herein worthy note, which I must not pretermitt, is, That if any Matter remain at the bottom of the wounded Nerve, it is as bad as poyson, executing there its traiterous venomous qualities, procuring for its companion, Pain.

Note.

Wherefore we are further to note, That the proper Medicines which are here to be used and applied, ought not only to be hot and drying, but to have in them an educeing and extracting quality. And these Medicines are either simple or compound; amongst the Simples may be reckoned Rosine of the Fir-Tree, Turpentine, Gum Elemni, Oyl of Turpentine, and Oyl of Fir; these being both thin bodied, and having in them an educeing and extracting quality, to fetch every ichorous Matter from the bottom of the Wound. Stronger than these may be reckoned Liquid Pitch, *Ol. Petrol. Sagapen. Opopanax, Sulphur vivum, Euphorbium*, and the like.

Another thing remarkable in these Wounds, is, That no Lint is here to be applied, for this doth choak up the Matter, and hinder its exition, and hence follows intolerable pain.

Note.

Fallopianus doth much commend *Euphorbium*, as the best and chiefest of Medicines for these kind of Wounds, and calls it his *Sacra Anchora*, it never deceiving him that useth it, but doth further answer expectation; yet he makes a vast difference between *Euphorbium*, the best being newest, and appearing like black Resin at its ends, the old is yellow and reddish.

Now having shewn the Simples, it's time to come to Compounds, of which take these; *R. Sagapen. Opopanax.*

Unguent.

an. ʒij. Tereb. P. ʒij. Ol. vetust. ʒss. misce; or if you desire a stronger, take this; *R. Asse fixid. ʒj. Ol. vetust. Pic. naval. Cer. an. ʒss. misce pro Linimento.* To this also

Another.

Of Wounds of the Nerves.

may be added *Ol. Sambuc. Su'phur viv. an. ʒj. misce ad mellis spissitudinem.*

*Ol. Hyperic.
Fallop.*

Fallopius in these cases doth highly commend the magisterial Oyl of *Hyperici* thus made; *℞ Terebinth. clar. ʒij. Ol. Terebinth. ʒj. Rosar. Complet. ʒiiij. Verm. ter. restr. lot. in vino ʒj. Rubr. Tinctur. ʒij. Sem. & fl. Hyperic. M. j. Rosimar. Millefol. Centaur. maj. an. M. ʒ. Sulphur viv. ʒj. tritis terendis incisq; incidendis misceantur addito vino malvatico, ac parum coquantur, deinde adde sem. & flor. Hyperic. & coquantur ad vini consumpt. tunc exprimantur, & in vas reponantur, & serva ad usum vase bene clauso.* And when he useth it in Punctures of the Nerves, he follows *Galen's* advice, *Lib. 6. Meth. cap. 2.* thus prescribing it: *℞ Euphorb. ʒj. Ol. ante script. ʒxij. Cer. ʒij. misce pro Unguento;* this is to be applied until all pain doth cease; this also increaseth new Flesh, and doth produce a Cicatrice, and so doth perform all intentions. Or in the like cases may these be used: *℞ Tereb. clar. Ol. Hyperic. Resin. Pin. an. ʒij. Sulphur. ign. non expert. ʒj. Croc. ʒss. misce, & lento igne bulliant.* Or this also of *Galen*: *℞ Cer. non. ʒj. Terebinth. pic. grac. an. ʒj. Euphorb. ʒj. misce.*

History.

To conclude this Chapter, be pleased to take these few Histories. The first shall be of *Glandorp* in his 41 *Observation*, of One whose Nerve was prickt instead of a Vein; whence followed direful Symptomes, the which was cured as followeth: A Woman in the Moneth of *June* desiring to have a Vein breathed, happening to go to an unskillful Chirurgeon, who scarce knew the difference between a Nerve and a Vein, prickt the Nerve instead of her Vein; hence did arise great Pain, and a large Tumour in the affected part; the Barber-Chirurgeon applies to the part Oyl of white Lillies, with which he anointed the part, and afterwards directed this *Cataplasme* made of Mallow leaves, & Violets, with Bran, these rather encreased the pain, and the hand began to look livid,

livid, his Father being sent for, seeing the parts began to run into a Gangrene, first prescribed this Cataplasme; *R. Pan. tritic. Siligin. lb. R. Furfur. subtiliss. pulv. ʒ ij. Pub. Rad. Acir. ʒ j. pulv. Scord. ʒ B. fl. Melilot. Chamomel. Rosar. Rubr. an. pug. 3. Farin. Orob. ʒ ij. cum Oxy-melit. q. s. fiat Catapl.* The Wrist and whole Arm was anointed even to the Nuch of the Neck with these Unguents, *R. Ol. Rosar. Lumbricor. Camomel. an. ʒ B. Vulpin. Scorpionium an. ʒ iij. misce.* The Night following, both Delirium, Fever and Convulsion seized her, and for this was prescribed a Cordial, wherein was *Aqu. Langij & fl. Tilia*, and over the whole hand and arm was applied the aforesaid Cataplasme; the Wound being dilated, was afterwards drest with this; *R. Terebinth. Venes. lot. in vino albo ʒ j. Mel. Rosat. Colat. ʒ ij. Myrrh. ʒ ij. pulv. Scord. ʒ j. Lumbricor. terrestr. preparat. ʒ j. B. misce.* The Gangrenated parts within a few dayes began to separate, and by the application of these Medicines, stopt; the eschar of which being removed, under this was the Nerve, or rather the Tendon seen to look black; the which was amputated, and extracted: After this was applied an Incarnative Medicine, and at length the part was cicatrised. The Elbow and the whole Hand was immoveable, for which, with great Success, were applied these following Medicines, *R. Ol. Lumbricor. Rosar. an. ʒ B. Vulpin. Lilior. albor. an. ʒ iij. Chamomel. Unguent. Dialth. cum Gum. Auxung. Human. an. ʒ ij. misce pro Linimento.* With this was embrocated his hand and his whole arm, it being first fomented with this, *R. Rad. Alth. recent. Consolid. Major. an. ʒ j B. Herb. Alth. Malvar. Violar. an. M. j. Salv. Marjoran. an. M. B. Hader. Terrestr. Absinth. Summitat. Hyperic. an. p. iij. Coquantur in aqua fontana, ad fomentum.* The parts being thus fomented and embrocated, lastly was applied this Emplaster spread upon Leather, *R. Auxung. Por-*

Catapl.

Olea.

Unguent.

Liniment.

Fomentation.

Of Wounds of the Nerves.

cin. 3j. *Oxyroc.* 3℔. *Empl. de Melilot. de Mucilagin. an.* 3vj. *Misce.* With these dressings she perfectly recovered and gained the motion of all her hand and arm, save only the Thumb.

Another.

Foresterus, Observat. 20. fol. 183. writes of a Woman, who pricking her little finger with a Needle, had the 4th day after a great Tumour thereon, and the whole hand appeared as if it had been corrupted with a *Phlegmone*; but it tended not to suppuration, the natural heat not being diminished; and hence followed somewhat of an cedematous Inflammation, for which this Medicine of *Euphorbium* was applyed, anointing the fingers therewith, *R. Cer. Resin. Pic. an. 3 iij. Euphorb. 3 j. Terebinth. Ol. Commum. an. 3℔. misce.* And for the Inflammation was applyed *Unguent. de Cinerib. Solitum.* by which the flux of humours was stopped. In the interim was applyed an Emplaister made of Resolvers and Strengtheners; after which was fomented the parts with a Decoction made of Wine, wherein were boyled Wormwood, Camomile and Salt; by this the Inflammation was wholly abated: then was the finger anointed with *Unguent. Dialth.* bathing the head with the broth made of Sheeps Guts; And thus at length was she recovered.

Horatius Augenius, lib. 9. Epist. 2. writes of a Taylor, who receiving a prick by his Needle between his nail and the flesh of his right Thumb, dyed thereof, and writes that *Ludovicus* was witness thereof.

To conclude this, take that of *Amatus, 1. Curat. 38. Punctura acus in Digito*, thus writing of an Old Gentlewoman threescore years of age, who prickt her Thumb with a Needle near the nail thereof, the which grew very painful, so that 12 dayes she could scarce rest; he being sent for to her, and examining the matter, found about the juncture near the nail a small collection of matter

matter, the which being let out, and anointing the hand with Oyl of Roses, she was within two hours freed of her pain, and in few dayes after perfectly cured.

CHAP. XL.

Of Transverse Incision of the Nerves.

THis by the *Arabians* is called *Ganziratus*; and here we may behold it either wholly cut, or cut in part; if it be wholly cut, it occasions a weakness of the part onely, but if it be but cut in part or half way, it declares the same by a great Fever, and fear of Convulsion, and hence ought we to breathe a vein, and to strengthen the affected parts, by removing its ill temper if any have appeared. In this case where the nerve is thus cut, the Wound must necessarily be large; and in this Wound this method is to be followed, if pain be present, foment the affected part with hot Oyl, but if neither Spasme nor pain appear, there needs no use thereof. If any humours have flowed, these are to be discussed; as *R. Ol. Rosar. Myrtin. Mastich. an. ʒj. Succ. Plantag. Centinod. an. ʒj. Acet. alb. ʒ. Verm. Terrest. lot. in vino albo ʒj. Coquantur ad vini consumpt. et aceti & Succorum, tunc adde. Bol. armen. Terr. sigillat. Santal. Rubr. an. ʒiij. iterum parum bulliant, & addito parum cere fiat Linimentum*; The Wound to be filled up with Turpentine or Spirit of Turpentine. If any ichorous Matter do supervene, we are to use stronger Desiccatives, and such as may force the humidities out; as *R. Terebinth. venet. ʒij. Ol. Hyperic. ʒj. pulv. Subtiliss. Sulphur. vin. ʒij. misce. et aliquantulum bulliant.* Or this, *R. Terebinth. V. ʒ. j. Ol. Aneth. ʒj. Sulphur. preparat. ut ante*

Ulaguent.

Of Wounds of the Nerves.

ante 3 ij. misce. Or, R. Ol. Terebinth. Mastich. Lumbricor. an. 3 ij. Euphorb. recent. pulv. 3 R. Croc. 3 R. misce. Or this, R. Ol. abietin. Hyperic. Magistral. Fallop. Mastich. Lumbricor. an. 3 j. Resin. Pin. 3 R. Sulphur. vin. Euphorb. an. 3 ij. Croc. parum misce, lento igne parum coquantur. Cataplasmes also in these cases which have in them a drying, strengthening and prohibiting faculty, operating without much Stipticity, may be of great use here, and for this use doth Galen propose many Simples, of which these may be made, as Dittany, Feverfew, Camphreos, both the Centauries, Stachas, Comfrey, Ivey, Betony, Turpentine, Earthworms, Bean-meal, Lupines, Fenugreek, Oyl of Mastich, Camomile, and the like. If Inflammation doth appear here in the beginning, we may use this, R. Fol. Rosar. Rub. Myrtin. an. M. j. Beton. Camomil. an. M. R. Coquantur vino nigro austero et pistentur, tunc adde Farin. Fabar. 3 j. R. Horã. 3 iij. Ol. Rosar. Mastich. an. 3 j. Lixivij tenuior. q. s. misce. And with this proceed to the 7th day, and when a good digestion appears, and all evil Symptomes be removed, you may deterge the Wound with this, R. Litharg. Aur. Vino Lot. 3 ij. Ol. Mastich. Cer. Mell. an. 3 j. misce: This being done, unite the parts with this Powder, R. Pulv. Verm. Terrestr. preparat. gran. Tinctur. Equiset. Oliban. Aristoloch. rot. an. 3 ij. misce, fiat Alcotiol. per petiam transmissus.

Catapl.

Unguent.

Powder.

History.

Digestivum.

Glandorp. Obs. 42. fol. 103. writes of a Young Man, who being of a Plethorick Constitution, received a Wound, with which was hurt also a Nerve, but its Fibres were not wholly cut or divided, hence issued great Pain, Fever, Delirium; and the third day after followed Convulsion, a Vein being breathed, and a good Dyet prescribed, the Symptomes not by these being conquered, the Nerve was wholly divided: After which it was thus dressed, R. Pul. Rosat. Colat. 3 vj. Terebinth. Lot. in vino Rubro 3 R. Ol. Lumbricor. 3 ij. Pulv. Lumbricor. Terrestr. Mastich. an. 3 j. Vitell. Ov. q. s. misce. The Symptomes

tomes being lessened, was applyed this Cataplasme ;
R. Farin. Fabar. Lupinor. Orol. an. ʒ ij. S. Pulv. Scord. Catapl.
Tapſibarbat. Rosar. Rub. an. pug. j. Pulv. Lumbric. Terrest.
ʒ ij. cum Oxymel. q. s. fiat Catapl. By these and the like
 dressings he perfectly recovered.

He produceth another History worthy Note , of a Another.
 Noble-man, who being of a Cacoehymick habit, and
 affected with a *Lues Venerea*, who in a Duel being
 wounded, had an oblique Incision into one of his Nerves,
 and so as the Nerve was not wholly divided , hence fol-
 lowed Fevers, *Deliriums*, and great pains, the affected
 parts being embrocated, and Anodine Cataplasmes ap-
 plied, and no ease by these received, a division of the
 Nerve was proposed, which would be the readiest way
 to prevent Convulsion and all other evil accidents, he
 not permitting this to be done, there did arise an *Em-*
prosthotonos, in which he miserably dyed.

CHAP. XLI.

Of a Contused Nerve.

AND here may we meet with a Tumour and an
 intolerable pain, arising from the Blood perco-
 lated *per Anastomosis*, from the small veins, and
 see the affected place begin to grow livid, having an af-
 finity with an *Ecchymosis* ; and the flesh hereupon being
 contused is speedily to be suppurated, and the Contusion
 dispatcht without much pain : And because in *Galen's*
 time these Contusions were very frequent, and he very
 happy in their recovery, we shall follow his method and
 example,

Of Wounds of the Nerves.

example, who adviseth us in every attrition of the Nerves or Contusion thereof, that we speedily make evacuation. And because in these Contusions the first intention is to well order and dispose the body, Phlebotomy and Pharmacy, with a thin Order of Dyet, is to be prescribed, both for stoppage and prevention of pains and fluxions: And to the affected parts apply Bean-meal and Oxymel mixt together, this both attenuating and digesting the egressed blood. Sometimes we may use *Farina Orobi. cum Oxymeliti*, adding hereto Powder of *Ireos*. But because *Galen* doth direct us in these cases to astringe, he orders Red Wine to be mixed with the former. In these cases also *Unguent. Alabastrinum* is also good, if the *Cutis* be rent and exulcerated, those Medicines are here best which can dry up most: And hence *Avicen* saith, If a Wound happens with a Contusion, the proper Medicines here are to be Dryers, which may unite the parts, assuage pain, and hinder Inflammation; And for this purpose *Ol. Terebinth. Hyperic.* with Powder of Earth-Worms, Mastich, and compleat Oyl are good. And for the asswaging pain, Order this, *R. Unguent. Alabastrin. Farin. Fabar. Puku. Lumbricor. preparat. et cum paucis vini et Oxymelit. fiat. Empl.* And if any putridness appear, this is to be removed with Honey.

Note.

History.

To conclude this whole Discourse, take these few Histories. The first whereof *Forestus* in *Lib. 6. Observat. Chirurg. Observ. 40.* writes, of One whose Nerve was contrited and attrited with a small contusion of the *Cutis*, to which was applyed a Cataplasme made of Bean-meal with Honey and Vinegar mixt together, and in the punctured obcerated Nerve, the Moss which grows upon stones, being mixt with Sulphur Wine and Vinegar upon a red hot Tile, and afterwards applyed, did wonderfully assuage his pain, and did resolve the Matter which was collected in the Nerve; and for the Tumour thereof,

thereof, *Ol. Terebinth.* with a little Salt being boyled together was applyed with good success, and without any other Medicine, *Ol. Irini* being onely applyed to the Contused Nerve, perfectly cured it. And because Distention of the Nerves which is the 4th Passion that they may endure, or a Distortion may happen by a full, extraordinary motion, or other violent external cause which may hinder and molest the motion of the part; In this case we are to apply either *Empl. Diachylon cum Gummi*, or *De Mucilaginis*, or a Cataplasme made of new Marsh-Mallow Roots, Lillies, with Bean-Meal and Fænugræk seed and the like boyled together. Besides also, in a contused or distorted Nerve sometimes a hardness remains, as oft-times it happens by reason of the access of thick and viscid humours, whence a dullness doth seize the part, Emollients and Digestives are here to be applyed, such as are *Bdellium*, *Ammoniacum*, *Galbanum*, *Diachylon magnum*, with liquid *Storax*, Oyl of Lillies, Dill, Goose-grease, and the like. If the Tendons be hurt, they must be cured as you cure those of the Nerves, but the Medicines which are here to be used ought to be more strong and dry. If the Ligaments be hurt, these require still stronger Medicines; for as these have but small sense of feeling, so they require stronger Medicines, not communicating with the Brains, they arising from the Bones, and ending therein also; so any drying Medicine may be used without offence, therefore fill up the flesh and consolidate those Wounds as you do others.

Distention &
Distortion of
the Nerves.

Wounds of
the Tendons.

Wounds of
the Ligaments.

I conclude the whole with a very Worthy Story of a Souldier, who being wounded about his Neck, and the Nerve lying bare and unharmed, was cured exactly with this method; *R. Terebinth. lot. in aqu. Salv. Mel. disputat. an. 3ß. Farin. Orob. 3ij. Pulv. Lumbricor. Terrestr. 3j. Ol. Rosar. Lumbricor. 3ij. misce.* Let these and every thing that you apply to the Nerves or nervous parts be

History.

Of Wounds of the Nerves.

Note.

applied warm ; For according to *Hippocrates's Aphorism.*
5. 17. cold things do here create Convulsions, Disten-
tions, Livors, Rigors, and Fevers, as well as in Ulcers, it
hardens the skin, and creates insupportable pain, over the
dressing apply *Empl. Diapalma*, anointing the Circum-
jacent parts with Oyl of Roses and of Earth-Worms,
dipping your Stupes in Red Wine, and the intected
Nerve being covered with flesh, was afterwards Cica-
trized, and the Patient cured.

Thus have I sailed through the general Coast of
Wounds. My next Task shall be to Treat of Particular
Wounds as they fall in their Order, beginning from the
Upper Parts, and ending at the Foot.

OF



O F

Wounds in Particular,

CHAP. XLII.

Of Wounds of the Forehead.

HAVING run through all the Wounds of the *Head*, We next come to those which may happen to the Front or *Forehead*, called *Frons à ferendo*, because it carries in it the lively resemblance of Heaviness, Cheerfulness, Sadness or Moroseness: And that which makes it so moveable, is the two Muscles of which it is composed; the which *Riolanus* doth call the Membranous fleshy Muscle, it begins from the Eye-lids, and ends where the hair begins; it consisteth of a *Cuticula*, *Cutis*, a little fat, and a *Membrana Carnosa*; it hath two sorts of Fibres allowed it, for helping forwards the elevation of the Eye-lids. If a Wound happens here, and that with hurt of the frontal Bone, here are we to study security of the parts, more than their beauty, because these Wounds are dangerous; for here the Wound is to be dilated, and the Bone to be deraded, and the same method to be used as I have already shewn you in Wounds of the Skull: But where

Of Wounds in Particular.

Wounds happen here without any hurt to the Bone, here are we to study their Cure to be performed with the least of Scarr or Deformity : And as a Wound may happen here, without loss of substance, here are we to Cure as we do other Wounds ; yet with this respect to regard the habit of the Body. Hence also if a Flux of Blood be present which may hinder union, this is first to be minded, then are we to proceed to the uniting of the parts. And because Sutures here do leave their marks, we are to abstain from these, and to apply such Medicines as may unite the Lips of the Wound ; the which being conjoynd are so to be kept : and for this use a small and narrow Ligature is very proper, applying some agglutinative Medicine to the Wound before you use the Ligature : As hereto adding the white of an Egg well beaten, to which may be added Dragons blood, Mastich, Frankincense, Sarcoecolla, and the like, to be made into the Consistence of Honey ; this way may you prevent an ill Cicatrice. In a transverse Wound of the Forehead, no Ligature is proper ; but here we are advised to come to the stitch, and the second dressing to cut off the stitches, and to apply some agglutinative Medicine ; these only to be used also where the lips of the Wound are at much variance, the which are by Suture to be brought to a mutual Contacture : For agglutination, *Empl. Barbarum* is very good, and *Diapalma* will do it ; and where a good union is purchased, the place is to be anointed with *Axungia Humana*, the which by its natural property doth effect a fair Cicatrice. In these cases, where you intend to procure a Cicatrice, *Unguent. Tuthie* is very good, or *Unguent. Cerussa* in Summer time. And thus much of these Wounds.

To conclude this, take these Two Historical Observations ; The first of *Glandorp, fol. 91. Observ. 13.* who writes of a Lady, who falling several times in one and the same place, purchased hereby a large Contusion in her
Fore-

Forehead with an *Ecchymosis*. Upon which followed *Delirium* and Vomiting, Nature endeavours to suppurate the matter, and to assist her, was applyed this Cataplasme, *R. Medull. Pan. Tritc. ʒ iij. fol. Malv. recent. M. S. Betonit. p. iij. Farin. Tritic. ʒ j. cum s. q. Lact. Vaccin. fiat Catapl. sine addendo Ol. Lilior. ʒ j. Axung. Suill. ʒ B. Croc. ʒ B. Vitell. ovi n^o. j. fiat Catapl.* The Tumour being enlarged, and the matter ripe, let a right Incision be made (which in these cases are generally thus to be made, it being constituted of right Fibres) in the lower part upwards both for the better absterging and expurging of the Matter, a Ligature being applyed on the lower part for prevention of its descent, being dipt in Wine and prest out, the Matter was at length wholly discharged, and by prescribing a good Dyer, and procuring Incarnation, the Wound was Cicatrized and Cured.

Dodonæus fol. 267. writes of an Old Man, who having received a Wound in his Forehead, was freed from blindness: And he further annotes of a Woman of Fifty years of age, who by falling from a high place had her frontal Vein wounded, much blood issuing thence, she suddenly did speak, and that impediment of her Tongue was loosned, which for some Moneths had been tyed up by an Apoplexy.

CHAP. XLIII.

Of Wounds of the Eye-lids.

THe *Eye-lids* being appointed by Nature as the draw-bridges to lift the Eye up and down, are sometimes wounded: These are framed for keeping out dirt and ill vapours from the Eye, and keep back all injuries from assaulting or coming near the Eye; they consist of a thin *Cutis*, having no fat allowed them; inwardly wrapt up with a thin and light *Perierane*, for the more easie motion: each Eye hath two, one whereof we call the lower, in man not of much use, the other the upper, being of great service to Mankind, endued with two Muscles, the first being right, seated in the upper region of the Orbit, within the *Thalamus* of the Eye: the other said to be Orbicular; but this by *Riolan.* and *Spigelius* is taken for two: *Julius Caserius, Sect. 1. de Orig. Vis. Cap. 18.* writes, That hence may be taken these Indications, such as have an elated upper Eye-lid, are proud and fierce; and such as have them depressed, are humble and mild. But to come to their Wounds: If the Ligaments of the Muscles be not dissected, use no Suture; for this doth bring intolerable pain and abscess: but if these be incised, stitch them up with a deep and firm stitch. Now a Wound of the Eye-lid may happen either by a simple Incision, or with Incision with loss of some of the substance. In case of a Wound caused by a simple Incision lengthwayes made, according to the Series of the Fibres, here are we to use Cephalick and Agglutinative Powders, such as have no sharp quality in them. If the Incision be transverse without loss of substance, here procure an exact agglutination, so as the lips of the Wound may fairly and evenly answer each other: The Sutures

or

or Stitches that you make here must be deep, for taking fast hold. If a Wound happens here with loss of Substance, study the discharge of Matter, and procure a good Consolidation; and for this Use Sarcoticks are the best Medicines, as *Balsam. Lucatell. Liniment. Arcai*, and the like. As for Sarcotical and Agglutinative Medicines here to be used, this Powder of *Galen* is very excellent; *R Bol. armon. Terr. sigillat. Sang. Drac. Sarcocoll. an. ʒj. misce*; or if you please, to 2 drams of the first two you may add a dram of the last two; above the Powders being very finely beaten, is to be applied a piece of fine and soft linnen Cloth, dipt in the white of an Egg and Rose-water beaten up together; for this doth hinder Inflammation, and over these apply convenient Bolsters.

To conclude this Chapter, I shall end with this observable History; the first whereof shall be of a young Man, who looking upwards, had a small Stone fell down upon the upper Eye-lid, the which did both hurt it and its Cartilage, and dissolved its Continuity. A Suture being presently made, and the Parts enclosed by a Needle, the Cartilage remaining unhurt, there did arise a great Inflammation both of the *Adnata* and Eye-lid, with pain; to the Wound was applied an agglutinative Medicine, with *Empl. Diapalma*; into the Eye was injected a *Collyrium*; a Vein was breathed; a good order of Diet prescribed; and this *Collyrium* ordered: *R Sem. Melon. recens. excorticat. ʒʒ. Aqu. Rosar. Euphrag. Plantag. an. ʒvj. Contundantur semina in mortario marmorio cum q. s. aquar. supradict. & cola, colatura adde Terr. sigillat. opt. Turb. preparat. an. ʒij.* the which are to be bound up in a piece of linnen Cloth, and so put into it. And because his Body was very Cacochymick, he was ordered these Pills: *R Pil. Lac. Major. ʒʒ. Pil. Coch. ʒʒ. Diagr. Pill. gr. ij. cum Ol. Anis. q. s. fiant Pil. no. ʒ. deaureantur.* These being administred, the Inflammation ceased, and the other

other Symptoms vanished ; the Wound was Cicatrized with *Diapompholigos*, and the Patient cured without any blemish.

CHAP. XLIV.

Of Wounds of the Eyes.

I Shall continue my Discourses with a brief Anatomy of the Parts, as I treat of them, being very advantageous to the young Chirurgion, to direct him in his handling of them, if wounded. And in this place of worth we must make a stop, to admire the wonderful Fabrick of the Eye, of what Parts it consists, and how variously these may be hurt and wounded.

But to begin with the Ancients : See how *Laurentius* and *Spigelius*, and *Baehne* speak of it. That whereas the Soul of Man, although it be simple, ἀσύνθετος καὶ ἀναλλοιωτός, yet it cannot make its entrance into the *Ergastulum* of the Body, or arrive at understanding, reasoning, and speculation into Fancies, without the help of Senses. As therefore the Head is the Seat of Senses, and House of Reason, so also are these Senses as Guardsmen to the Soul, and are planted as *Internuntij* in its Region. And although there are allowed 5 Senses, yet the chiefest and principal of the rest is Seeing, and that in these three respects ; for this declares and shews to us the variety of Objects, and their differences. 2dly, Their ways and methods of operation are most noble, and do exceed the rest, for vision is made in an instant. It's these that give us our sight and light also, the which the ancient Stoicks called the Divine Vision ; *Hesychius* calls them ἡλίου πύλας, *Solis Portas* ; the Latines call them *Oculi*,

Oculi, ab oculendo: They are lodged under the Eye-lids as under a Veil; they are the two Lights of our Microcosm, appearing as our bright Stars, being as the Indexes of the Mind, and most inducing to sweetness and comfort of Life: to pass their admirable figure, site, connexion and temper, we come to its rare composition. And thus may we see it framed of six Muscles, thus called, *Superbus, Humilis, Bibatorius, Indignatorius, Amatorij*, or two circular Muscles; having these common Membranes allowed it, the which I shall only name, *Adnata, Innominata, Cornea, Sclerotis, Uvea, Choroides, Arena, Retiformis*. It hath also these 3 Humours, as a Watrish, Vitreous, and CrySTALLINE Humour granted it, with an Optick Nerve, Veins, Arteries, Fat, and Glandules: Of each of these you may read more at large in *Laurentius Spegelius*, and *Demerbroke*.

Having thus shewn how the Eyes are the Organs of Sight, we may also see how they may be affected, wounded, punctured; and these Parts having their Nerves and Membranes immediately arising from the Brain, this declares them to be of an exquisite sense, whose Coats are very thin, and perpetually in motion; hence are hereby Fluxions easily received into them; and these do require both an artificial and careful method to be used. In these Parts we are also advised by *Galen*, That we abstain from all oleaginous things, these here both inflaming and causing Pain: 2ly, To keep the Eye from the light, for this weakens it. And to cure a simple Wound happening here, these three Intentions are required; To prevent Inflammation, and stop all flux of Humours, to mitigate Pain, and to unite the separated Parts. Of each of these in their order.

Note.

Inflammation.

And first of preventing Inflammation: And for performing this, Breathing of a Vein, ordering a thin Diet, applying repelling Medicines to the Front, are good and necessary, made of the whites of Eggs, Rose-water, Bol.

F f

armeny,

Collyrium.

Unguent.

armeny, powder of fine Tutthy, into the Eye may be put too of *Troch. alb. Rhafis sine Opio* in fine powder, with Plantain-water; if the right side be affected, let the Patient lye on his left. Of this instead of the former may be used, *R. Troch. alb. Rhaf. ʒij. Aqu. Plantag. Rosar. alb. an. ʒij. Tutth. preparat. ʒj. misceantur in Mortario & fiat Collyrium*: Or this, *R. pulv. Lap. Hamatis. preparat. ʒij. Camphor. Alo. lot. an. ʒij. Tutth. preparat. Sciph. alb. an. ʒss. misce in Mortario plumbeo & fiat Linimentum*. If the Wound hath Inflammation adjoynd, we are to mind this, not neglecting the Wound; and for dissolving and discussing the concrete Blood occasioned by Contusion, or the Laceration of its Coats, into the Wound is to be instilled Pidgeons blood lukewarm, or Womans milk, over which is to be applied a Cataplasme made of white Bread, powder of Wormwood beaten with the white of an Egg, at night fomenting the Eye with a Decoction made with *Troch. alb. Rhaf.* the Mucilage of Quinch-seed extracted in Rose-water, and a little prepared Tutthy.

To assuage Pain.

Decoction.

Powder.

Empl.

The second is to assuage Pain, and repel the defluxion of Humours: These following may be directed; as, *R. Fol. Plantag. Rosar. Rubr. fl. Melilot. Camomel. an. m. f. Sem. Fanugrac. ter lot. ʒss. Alo. Myrrh. Thur. an. ʒj. Croc. gr. iiij. Tutth. preparat. Pompholig. preparat. Cernuss. lot. an. ʒij. Troch. alb. Rhaf. cum Opio ʒj. Aqu. Rosar. Fanicul. an. q. s. fiat Decoctum*, with which the Eye is to be washed oftentimes in a day.

A Powder for the same is this: *R. Troch. alb. Rhaf. cum Op. pulv. Tutth. Opt. preparat. Pompholig. preparat. lap. Hamatis. Gum. Arabic. Tragag. Alo. an. ʒj. Croc. ʒss. misce, fiat pulvis tenuissimus*. This is to be used to the 4th or 7th day.

Falloppius doth much commend this Plaister for asswaging Pain: *R. Carn. pomor. dulc. sub prun. coct. ʒij. fol. papaver. alb. coct. sub prunis Hyosciam. ita coct. an. ʒjss. Croc.*

Croc. ʒj. farin. Fanugrac. ʒij. lact. Muliebr. Ol. Rosar. an. q. s. fiat Emplastrum, extendatur super petiam, & imponatur super oculi clausi palpebram.

Uniting the divided Parts.

The third Intention, which is the uniting of the separated Parts, will be made evident in the ensuing Discourse. If therefore the Wound be a simple Wound, only penetrating and incising the *Cornea* or *Conjunctura*, and this happens, without any exition of its interior Body or Humour, this is to be united. And for the performance hereof, we must be very careful and have regard to the Eye, for it's irritated by every small thing; hence therefore if Pain afflicts it, remove it by Revulsion; if the Wound be deep, the weapon which occasioned it, must pass through the broad and long chink about the Orbits: If the Wound pass into the Brain, it is mortal; if it reacheth not so far, but only doth enter the aqueous Humour, and makes that fly out, or the vitreous or CrySTALLINE Humours, in these cases Sarcoticks are most proper, and these are to be used in very fine Powders, of which I have been very plentiful, they being made of *Terra sigillata*, *Bol. armen.* *Sang. Dracon.* *Sarcocoll.* *Lap. Calaminar.* and the like. And because it sometimes falleth out, that part of the wounding Instrument doth stick in the Eye, if it sticketh so fast, as that it may not easily be removed, without effusion of some of the Humours, and that it doth not prick the Eye-lids, this is best to be kept in, and to dress the Wound with anodine Medicines until the 7th day, as *Fallopins* adviseth, and then to use Agglutinatives. But if the piece doth cause pain, and a continual gleeing, and hurts the Eye-lids, this is thus to be dressed with *Unguent. de Betonica*, with which the Tent is to be armed, over which may be applied *Oxelaum*: Or for the same Use this is excellent; *R. Ol. Vitell. Ovov. ʒʒ. Abietin. ʒij. Croc. gr. iij. misce in oculum infundendum*; and this to be used until the 7th or 9th day.

Unguent.

Of Wounds in Particular.

History.

To conclude this with some Historical Observations; *Glandorp fol. 98. Obs. 15.* writes of a Nobleman, who being challenged by another to fight a Duel, was wounded by his Antagonist in that part of the *Cornea* which is Diaphanous: The waterish Humour passed out here; he felt intolerable pains; a Vein being opened (*viz.*) the Cephalick Vein, and 6 ounces of Blood extracted, to the Eye for the present was put *Aqu. Rosarum* nothing being more ready, and so was it rouled up. In the interim this following Emplaister was applied to the Nuch of his Neck: *R Carn. bovin. salit. & in fumo exsiccet. ʒij. Ferment. recent. ʒij. Smegm. com. ʒB. Sal. ʒij. incidatur caro subtilissimè & simul misceantur & cum q. s. Aceti fiat pasta.* The 2d day was ordered this Collyrium: *R Aqu. Rosar. ʒj. Euphrag. Fenicul. an. ʒvj. pulv. Mirabol. Citrin. ʒj. lap. Calam. preparat. ʒij. Troch. alb. Rhaf. cum Opio ʒj. pulveres liquentur in petia & in aquis supradictis suspendantur;* of which every four hours was instilled some very warm. Oft-times to make his Body soluble, he was ordered *Cassia*, a thin Diet being prescribed, and such as was cooling; he took afterwards these Pills: *R Pil. Coch. Aurear. an. ʒB. Mastich. gr. vj. cum vino malvatiso fiant Pillula:* Hereby he was perfectly recovered without scarce any scar, and recovered his sight.

Vesicator.

Collyrium.

Another.

Another he hath of a young Man of scarce 16 years of age, who having his Eye hurt, the waterish humour with part of the vitreous humour flowed out; for which Efflux, the first day a Vein in his Arm was opened, from whence was drawn forth 5 ounces of blood, to the Nuch of his Neck was applied the former Vesicatory, hence followed great Inflammation and Pain, for the asswaging of which Womans milk was prescribed; then was applied this following Cataplasme: *R Sem. Cydonior. ʒij. aqu. Rosar. ʒij. & fiat Mucilago. coletur, colatura adde Carn. pomor. odorif. coct. ʒij. farin. Hord. subtilif. pulv. q. s. misce, fiat Cataplasma.* The Inflammation not being

Catapl.

being stopt by these, Cupping-glasses were applied to his Scapulaes, with much flame and scarrification, and Vesicatories applied behind his ears, out of which issued much water; the Pain not yet abating, he had an Issue made in his Neck, from whence within few days after a great plenty of Matter was discharged, and hereby the Inflammation ceased, and the pain began to be mitigated. For consolidating the Coat of the Cornea,

A consolidating Collyrium.

and the separated Lips, was used this Collyrium: *R. Aqu. Rosar. Euphrag. Fanicul. an. ʒjʒ. Cort. granator. ʒjʒ. fl. Balauſt. Rosar. Rubr. an. pug. j. Mirabol. Citrin. Nuc. Cupress. an. ʒj.* These being cut and bruised, let them stand in infusion in the Waters for 8 hours, then boyl them, and to the strained Liquor add these following

Ingredients, being tyed up in a fine piece of Cloth: *Cort. mirabol. Citrin. levigat. cum aqu. supradict. ʒij. Troch. alb. sine Op. ʒj. Tuth. Lapid. Calamin. preparat. an. ʒʒ. Cerus. lot. ʒij. his addendo Syr. Rosar. sicc. ʒj.* with which

Collyrium the Eye was washt 3 times in a day; this being used, the lips of the Wound was joyned, and for procuring a Cicatrice here, the Part was washed with this

A skinning Collyrium.

following: *R. Aqu. Fanicul. Rut. Celidon. major. an. ʒjʒ. succ. Fanicul. ʒjʒ. Tartar. preparat. gr. vj. Sacchar. albiss. ʒij. Sacchar. Saturn. vel. Sal. ejusd. gr. iij. Troch. alb. cum*

Opio ʒj. Tye up the Tartar and the Salt of Lead in a fine Cloth, and let them hang in the aforesaid Waters; with which was procured a good Cicatrice.

Solonander Sect. 5. Conf. 15. writes of a Woman, who cutting of Wood, had a sliver thereof fell into her Eye; she presently taking the yolk of an Egg, with Cerus and Oyl of Roses beaten together, and applying it to the whole Orbit of the Eye, instead of a defensative, and inwardly putting into the Eye the white of an Egg, mixt with Womans milk and Rose-water, was perfectly cured.

Another.

CHAP. XLV.

Of Wounds of the Face.

IN the foregoing Chapters I have shewn you the upper Parts of the Head, and those Parts which are covered with long Hairs : We come now to that Part which by some is called *Vultus*, à *voluntatis Indicio*, it being turned every way forwards and to the sides according to our wills : It is also called *Facies*, because it maketh the difference between Man and Beast. And here might we look into its Beauty, and consider in every respect its fair composition : We may well admire its Maker ; for although the treasures and store-houses of Judgment, Sense and Reason, are placed in other Parts, yet for Beauty this doth surpass them : For in this may be easily seen the storms and tempests of Anger and Passion, the silver streams of Love, the signs of Health, and the attempts of Death : Here may we lively see represented the Idea's of Joy, Anger, Sadness, Melancholy, representing the obscure Parts of Man, as by a glass ; some of its Parts are containing, others contained. The *Cutis* hereof hath in it this one remarkable thing, the which as it is variously perforated in the Eyes, Nostrils, Ears and Mouth ; as it is wholly nervous in the other Parts of the Body, in this it is musculous and fleshy. And because I intend to treat of all its Parts in their several orders, I shall not give you any further trouble to read more hereof, but fall upon its Discourse of being wounded.

And here although such Medicines as are already set down, may serve for the curing of Wounds of the Face,

Face, yet because it's the comely Part of the Body, and beauty of its Front,affording a wonder to its Spectators, here ought it to be our greatest care that we leave no scars,or foul Cicatrice. If the soft Parts be only wounded, close the lips of the Wound with evenness, by a fair Ligature, and agglutinative Medicines, and herein are we directed to make use of narrow Rowlers, these being most proper for performing this Intention. As for agglutinative Medicines, I have already presented you with a plentiful quantity; these may be made of Frankinsence, *Bol. armoni. Terra sigillata*, Dragons blood, Bean-meal, with the white of an Egg beaten up with Rose-water, or the like. If the Wound be large and wide, you must come to the use of the dry Stitch, the which I have already shewn in my Discourse of Sutures, and *Ambrose Parrey* is very full hereof, expressing both way and method, and therefore in this case I do recommend you to him. In these cases *Linimentum Arcai*, and *Balsamum Lucatelli* are good, over which may be applied this Cataplasme: *R. Bol. Armon. ʒij. Thur. Mastich. Sarcocoll. an. ʒss. Myrrh. Aloes an. ʒj. Sangu. Dracon. ʒß. Farin. Hord. Fabar. an. ʒj. misce, & cum albumine Ovi mist. cum aqu. Rosarum q. s. fiat Cataplasma.* Before the application of which, the aforesaid Liniment or Balsam is to be anointed all over the wounded Part, and the lips of the Wound to be touched therewith.

Arcaus lib. I. fol. 68. de Curand. Vulner. hath these two Histories: The first of which is of a Man who was desperately wounded, from his Eye-lid and Nose to the lowest Lip, so as the Nose with the upper Mandible and Teeth fell down upon the Chin; the Wound being sticht up, and the Mandible and its Bones being reposed into their proper places, it was afterwards rowled up with a Tape 2 fingers broad about his Forehead, from below upwards, and there sown up; and in form of a Cross was another Rowler sticht to the former, from one Ear to the other,

other, and by applications of good and proper Medicines the Wound was healed, and the Patient restored to his former health.

He writes another Story of the same Man, who being smitten under the Chin even to the upper Mandible by a Bull's Horn, opened part of the Face therewith, and dis-joyned his left Eye from the Nose with the end thereof, the place being sticht up with a Needle, the Mandible was restored as you see in the former, and he perfectly was cured; his Mouth was inwardly washed with a Decoction of Barley, Roses, Balaustians, and honey of Roses; and thus he was in a short time recovered, many pieces of Bones coming forth by his Palate, which were broken by the Horn, and left remaining in the Cavity of the Palate.

CHAP. XLVI.

Of Wounds of the Temples.

THE Temporal Muscles being very strong, are by the Greeks called *Crotaphites*, whose Fibres, by how much they do recede from their middle, they are so much the more obliquely carried with a Tendon. They do receive in each of them 3 Nerves, the first arising from the 3d pair, the 2d from the 4th, and the 3d from the 5th pair; in which respect this Muscle being either contused or punctured, great danger of Convulsion and death approacheth.

Another thing worthy note in this Muscle is, That it is covered with the *Pericrane*, by which the subjacent Temporal Bones are destitute thereof. *Hippocrates* doth advise in Wounds which happen here, by reason of the
direful

direful Symptoms which they do produce, the Patient doth not continue long. And for the confirming of this, *Jacotus Com. 1. Aph. Lib. 1. Sect. 3. Coac. Hipp.* writes, That he hath oft-times seen Convulsive motions happen here by a slight hurt in these Parts. And *Brasavolus ad Aph. 9. lib. 7.* writes, Upon some of the Temporal Veins being wounded, a mortal Convulsion hath followed, without any help or stoppage of the Flux. Yet *Ambrose Parrey* writes, Lest any Chirurgeon might be afraid of cutting the Temporal Muscle, where occasion doth require the exemption of the Bone by the Trepan, he doth here produce a History of an Experiment of his own, which he practised on one in the War of *Henry the II.* who being smitten with a Stone, with that violence that it fractured the *Os Petrosum*, and very much contused the Temporal Muscle, without any apparent Wound: To the which he being called into consultation with many other Physicians and Chirurgeons, it was generally agreed that the contused Flesh should be dilated, for the better coming at the Bone: The day following the Flesh was dilated, and the day following, which was the 3d day, a Trepan was applied; the which being done, some small frustula's of Bones were taken away, and putting in a leaden Pipe into the Part through which passed much Matter, the Patient was ordered to shut his Nostrils, and Ears and Mouth, and force it through here, the which passed from between the *Dura* and *Pia Mater*; the rest of the Matter was forced out by a Syringe, with which was injected a Traumatick and deterging Decoction, and the Patient was at length recovered.

And for satisfying of this Point, you may read of *Glandorp* in his *Specul. Chirurg. Obs. 9. fol. 82.* of a Child of 12 years of age, who having dashed the left part of his Head against an obtruse piece of Wood, did hereby contuse his Temporal Muscle on the same side: He hereupon presently grew immovable, vomited blood, and lost his

Catapl.

Clyster.

Decoction.

Empl.

speech; the hairs being shaved, it was anointed with *Ol. Rosarum*, and covered with *Melilot Empl.* until a Cataplasme could be made; the which being applied, the motion returned again, and the Imagination still seemed somewhat hurt. The Cataplasme was this: *Rx. Betonic. salu. Marjoran. an. P. iij. Rosar. Rubr. Primul. ver. Lillior. convall. an. P. iij. pulv. fl. Cham. Melilot. an. pug. ij. Farin. Hord. Fabar. an. ʒij. Orob. ʒj. cum Lact. vaccin. q. s. fiat Cataplasma, sine addendo Ol. Violar. ʒj. Vitell. Ovor. n^o. j. Croc. ʒj. misce*; the which being so rouled up as to keep it on, about the middle of the night he began to rest; the morning following he returned better answers to questions proposed, and began to perceive great pains of his Head, and griping of his Belly; for which was ordered this Clyster: *Rx. Violar. Malvar. an. M. j. Alth. Betonic. Verban. salu. Rorismar. an. pug. iij. Rad. Alth. ʒj. sem. Lin. Fenugr. an. ʒvj. Anis. Coriander. an. ʒiij. coquantur in s. q. aq. fontin. ad ʒxvij. colature, adde Elect. Diacath. ʒvj. Ol. Rosar. Aneth. an. ʒj. Sacchar. Rubr. colat. ʒx. misce, fiat Enema*, the which he retained for half an hour after its injection, whereby he received much ease, and the pains did begin to grow remiss, and the 3d day he walked about. But because a flatulent Tumour appeared in the Muscle, this following Decoction was prescribed for it, in which a Sponge being dipt, was applied, being well prest, to the affected Part: *Rx. fol. Betonic. M. ss. fl. Camomel. Aneth. Melilot. Rosar. an. pug. ij. Sem. Anis. ʒiij. Aqu. fontin. vin. optim. an. lbj. coquantur ad tertias*; the which being used for some days, the wind was discussed; and over the Part was applied this mixture: *Rx. Empl. Diapalm. ʒss. Melilot. ʒiij. Ol. Camomel. q. s. fiat Empl.* These being ordered, and a convenient Diet prescribed, he was restored to his health.

He hath another History in his 12th Observation hereof; but because I would not be too tedious, I commend you thither.

CHAP. XLVII.

Of Wounds of the Nose.

THis, as it is the instrument of Smelling, carrieth with it according to *Laurentius*, both Beauty and Majesty. Hence did the *Egyptians* in their *Hieroglyphicks*, signifie a wise Man by his Nose, who could thereby smell other mens politick stratagems. *Aristotle* doth call it *ῥίς*, in 11. Cap. *Histor. Animal.* the word taking its derivation from *ῥίω*, because through its nostrils do pass the Excrements of the Brain. *Cicero* writes, that it is placed above, for the better reception of Odours, and Nature placed it in a straight line, that Respiration may not be interrupted, but pass freely. It is divided into two Cavities by a partition, the odoriferous Spirits, or Air, do generally swim in them. This division also is generally believed was thus made, for the more perfect receipt of the Sense of Smelling; for we smell even in our breathing. It consisteth of a *Cuticula*, *Cutis*, Muscles, Bones, Cartilages, and an inward Coat, all which have their proper actions.

But because many worthy Authors of Anatomy have fully and plentifully enlarged on these, I shall not trouble you further therein, but fall to our present task, where we may meet with it wounded either in its soft Parts only, or also in its hard Parts. We shall first begin with its soft Parts.

Where by the way we are to note, That as the Nose is Boney in the upper part, so is it Cartilaginous in the lower part. If the *Cutis* be only wounded, a dry Stitch may serve, not to come to Suture, but rather to use agglutinative Medicines, endeavouring to our utmost to

Of Wounds in Particular.

procure a fair and even Cicatrice. A small skar here very evidently appearing, hence ought we to study to preserve its Beauty, by curiously joyning the lips of the Wound together. In these cases such Medicines which are here to be used, are to be of a soft consistence, and yet having in them an astringent and drying quality, hereby closing the lips of the Wound with that advantage, that scarce any mark may be seen; and for this Use *Unguent. Desiccativum Rubrum, Album Camphoratum*, and such as I have already mentioned, may do well here.

Wounds of the
Bone of the
Nose.

The second sort of Wounds which may be allowed to happen here, must either reach the upper and boney parts, or the lower and Cartilaginous parts. Now if the upper part be wounded so as the Bone be fractured, the first Intention here is to reduce the Fracture, then joyn and unite the Wound: And for the performance of this, according to *Aquapendens* his advice, cap. 39. de *Kuhn. fol. 895.* we are to put into the Nose a fit piece of Wood, wrapt about with soft linnen Cloth, so as it may easily enter thereinto, outwardly ordering the Nose with your fingers, for the true confirmation of it; this being done, we are to put in a Quill or small Pipe into the Nose, made of Reed, or the like, these not being exquisitely sound, but somewhat sharp above and flat below, to preserve its natural figure; For this Pipe hath these 3 Faculties allowed it; as that it keeps the conformation of the Part, and doth hinder the falling of any of the Bones into the Nostrils; then it makes a free passage for breathing, keeping the Nostrils open; and lastly, makes the way free for the discharge of all Excrements from the Brain; here also take notice, that this Pipe be not put too high, lest it doth occasion sternutation, and thereby do disorder the reduced Fracture, and consolidation of the Wound.

The Bones being thus reduced, we next come to the uniting of the separated Parts; which may be done by the dry Stitch or Agglutinatives; and as to say, *Epolygonicks*, *Bol. armeny*, *Dragons blood*, *Terra sigillata*, and the like, being beaten into fine powder; and mixt with the white of an Egg, to the consistence of Honey, is very good.

If a transverse Wound happeneth here, you are to apply to each side of the Nostrils a fine linnen Bouffier, moistned in red Wine, and prest out, over which to apply a Rowler, having a hole made in the middle thereof, for a more free breathing, sowing this to the back-part of the Head.

Of a Transverse Wound.

The lower and Cartilaginous part of the Nose being wounded, the same Pipe is here again required, when the lips of the Wound to be united, and brought together by Ligatures, and the same Medicines to be used, as I have already shewn. If the Cartilaginous part of the Nose be wholly cut off, this Wound is incurable. But that the beauty of the Face may not be thus deformed, you may frame a new Nose for it out of the skin of the Arm, or any other Part; but this is both a laborious, difficult, and long Work; it's made by scarrifying the pin of the Nose, and cutting the skin of the Arm, answering that part of the Nose which is lost; and the skin being there-to applied, and sown with the scarrified part of the Nose, the Arm is afterwards to be tyed to the Head, so as it be not any ways moved, for this would hinder Agglutination: Agglutination being made, the Nose is to be scarrified with deep Scarrifications, so as the flesh appear red; then the neighbouring part of the Arm is to be cut, and put to the Nose, and sown; and this is so often to be repeated, until the whole Nose be cut out, and the skin of the whole Arm be almost ablated, and agglutinated to the Nose. But to conclude this:

Of a Wound of the Cartilage of the Nose.

History.

We read of two Mariners, cutting one another with their Knives: The one cut the other so, as that he had the Cartilaginous part of his Nose as it were cut off; it was sticht up with 3 stiches in a good form, two at the sides being made, and the 3d in the middle, yet so as the Cartilage might not be damaged; after which was applied this Mundifier and Incarnative: *R. Ol. Rosar. Compl. ʒiiij. Succ. Nicotian. Apij an. ʒjβ. coquantur ad Succorum consumpt. & colatura adde Resin. Terebinth. ʒj. ʒij. Virid. Aer. ʒj. Cer. q. s. fiat Linimentum.* With this was anointed the Dressings, with which the parties were dressed; and over them was applied *Empl. Diapalm.* In the inward part, lest superfluous flesh should grow therein, was applied a hollowed Tent, armed with *Diapompholigos*; and that the mucous Substance may be derived from the Nostrils to the Palate, he used this Apoplegmatisme: *R. Cubebar. ʒj. Pyreth. Staphisacr. Agaric. Crud. an. ʒj. Pulp. Passular. ʒij. Sacchar. in s. q. aqu. Salv. Solut. q. s. fiant Troch.* the which being aright applied and ordered, he was perfectly recovered, without any impediment of Speech.

Liniment.

CHAP. XLVIII.

Of Wounds of the Ears.

IT's called *Auris*, *ab Hauriendo*, the Air being drawn in thereby. *Aristotle* calls these Parts, *Sensus Disciplinæ*, they being created for Understanding; these are framed with no less Art than the former. They are by the Greeks called *ὠτα καὶ ἑατα*, in English, Ears, from Hearing. They are framed of many Parts, the which do as well serve for the reception of sound, as also for the intension thereof. They are the instruments of Hearing, but not the principal Organs; for if these be lost, as we see it inflicted as a punishment upon perjured persons, yet the Sense of Hearing doth continue, as well as the Sense of Smelling, if the Nose be amputated. These Senses being lodged within the *Cranium*, they gain a semicircular shape; on the inside excavated, Nature hath made them two, that one being injured the other may perform the Work. *Vesalius* compares the whole Ear to a Fan. *Gaza* calls this *Pinna*, being much like a broad Cartilage, or Fin of a Fish. By some it is called a Wing, broad, for the better embracing the sound, which afterwards doth descend by the inward Compass unto the arched Cavity that guides it to the Head. The outward Circumference is called *ἔξωτος*, the inward called *ἑσώτος*.

But as touching the outward parts of the Ear, these being the proper Subjects of our present Discourse: And here may we see a *Cuticula*; as the common covering of this part as well as of the rest; next a Skin, enwrapping both the outside and inside of the Ear; it hath Veins dispersed on either side from the external Jugulars; Arteries it

Of Wounds in Particular.

it hath from the inward *Carotides*, which do pass to the backside of the Ear, two small Nerves it hath backward, and two from the sides of the 2^d Conjugation; they have both proper and common Muscles allowed them, found out by *Fallopini*, two others they have also, in all, four. The outward substance of the Ear is neither boney nor fleshy, but moderately hard, yielding a sound, an Echo being as it were framed without, and so carried inwards; its Cartilage riseth as it were out of the Temples, it's tyed to the petrose Bone by a Ligament, which is strong. There are many other parts belonging to the inward Ear, but Anatomy doth sufficiently shew these, therefore I pretermitt them. If the Ears be hurt by outward Causes, the danger is not great; yet if part thereof be quite cut off here, it never groweth again; and if they are only wounded, they require a right Suture, and agglutinative Medicines, and as *Hippocrates* writes, the dryer any part is, the more drying Medicines doth it require. If the Wound be to be stitched up, here are two things to be observed: That you only bring together the parts of the Skin on each side of the Ear, without touching or hurting the Cartilage: And then 2^{dly}, If the Wound doth reach to that Cavity we call commonly *Meatus Auditorius*, you are to keep a spongy Tent in it, to prevent the growth of a spongy flesh, and that no Matter may fall into it, which may exulcerate the inward parts; both which are set down for our instruction by *Aquapendens*, fol. 904. cap. 33.

The Wound being either stitched up, or joyned together, we are to use drying Agglutinatives, such as are powder of *Bol. armen.* Dragons blood, *Mastich.* Red Roses, *Balaust.* to be mixed either with the white of an Egg well beaten with Rose-water, or to be sprinkled in the lips of the Wound, over which is to be applied *Empl. Barbanum*, or *Diapalma*, or the like; the which *Empl. Barbanum* is thus to be made: R. *Bitumin. Judaeae.* Pic. *Arid.*

Arid. Resin. Cer. an. ʒxiij. Terebinth. Thur. Opoponac. Ceruss. an. ʒij. Litharg. aur. ʒj. Ol. Myrtin. ʒiiij. acet. q. s. fiat Empl. It the Cartilage be rent, *Celsus* doth highly commend this following: *R. Raf. Ærugin. ʒxiij. Spum. argent. ʒxxx. Alumin. Picis arid. Pinea an. ʒxiij. Ol. Myrtin. Acet. an. q. s. fiat Empl.*

To conclude: A Souldier being shot through in the middle of his Ear, it being much wounded, the Wounds were stitched up, the Cartilage was not hurt; and because he bled much at the Wound, this was presently applyed: *R. pulv. Lap. Hamatit. ʒij. Bol. armen. ʒjß. Ceruss. ʒj. misce, fiat pulvis*; over which was applied *Empl. Diapalma*, afterwards it was rouled up, some parts of the Cartilage laid bare, over which was sprinkled some of the aforesaid Powder, stopping the Ear inwardly with Cotton or Wool, and the Wound being mundified was soon healed and skinned.

CHAP. XLIX.

Of Wounds of the Lips.

These by *Cicero* are called *Labra à Lambendo*, of licking, they are two in number, being both fleshy, fungous and moveable; and as they are outwardly covered with a skin, so inwardly are they invested with a Membrane coming to the Stomach and Mouth: and hence is it that the Skin is seen to shake and tremble upon Vomiting. They are of great Use to Man, to help forward his speech, to void his spattle, and to defend his Teeth from cold Air; they have both proper and common Muscles allowed them, and these are held Six in number; two moving them upwards, two down-

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wards;

Of Wounds in Particular.

it hath from the inward *Carasides*, which do pass to the backside of the Ear; two small Nerves it hath backward, and two from the sides of the 2d Conjugation; they have both proper and common Muscles allowed them, found out by *Falloppius*; two others they have also; in all, four. The outward substance of the Ear is neither boney nor fleshy, but moderately hard, yielding a sound; an *Eccho* being as it were framed without, and so carried inwards; its Cartilage ariseth as it were out of the Temples; it is tyed to the petrose Bone by a Ligament, which is strong. There are many other parts belonging to the inward Ear, but Anatomy doth sufficiently shew these, therefore I pretermitt them. If the Ears be hurt by outward Causes, the danger is not great; yet if part thereof be quite cut off here, it never groweth again; and if they are only wounded, they require a right Suture, and agglutinative Medicines, and as *Hippocrates* writes, the dryer any part is, the more drying Medicines doth it require. If the Wound be to be stitched up, here are two things to be observed: That you only bring together the parts of the Skin on each side of the Ear, without touching or hurting the Cartilage: And then 2dly, If the Wound doth reach to that Cavity we call commonly *Meatus Auditorius*, you are to keep a spongy Tent in it, to prevent the growth of a spongy flesh, and that no Matter may fall into it, which may exulcerate the inward parts; both which are set down for our instruction by *Aqua pendens*, fol. 904. cap. 33.

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CHAP. XLIX.

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wards;

wards, and the other to either side of the Mouth. These are generally wounded lengthwayes: if the Lip be cut above or below, it is presently to be sticht up, for whilst the Patient moves his Mouth, he doth hinder Consolidation. Some are born with Lips divided, but these are to be cured by Needles, hereby joyning the diverted parts. Outwardly may be applyed agglutinative Medicines; inwardly more properly Syrups, to be ordered.

History.

And for further appearance how you are to act here, take these one or two Histories.

The first shall be of a Scholar which *Glandorp* mentioneth, who falling upon a Door in a dark Night, fell upon a Stone which cut his Lip, and brake two Teeth of his upper Mandible; and here because there was a separation of the parts, an actual and deep Suture was made, and the Teeth reduced into their places, the Wound was filled with Detersives and Digestives, which were outwardly applyed: Inwardly the part was touched and anointed with this: *R. Syr. de Ros. Sicc. 3j. de Succ. Nicotian. Misin. lan. 3℥. Uguen. Aggortiac. 3j. misce.* Over this was applyed a part of this Plaister, *R. Ol. Rosar. Litharg. aur. an. 3ij. Gum. Rorcin. 3ij. Vitriol. alb. 3ij. B. misce.* When it was well mundified, and began to heal, this was next ordered, *R. Tenth. preparat. Lap. Calamin. 9j. Corn. Cerv. 2℥. 9℞. Alo. gr. vj.* With which was generated a new flesh and a new Cicatrice: And for confirming the loose Teeth, this following Decoction, *R. Herb. Hyperic. Hypocist. fol. Ros. Rubr. Bals. 2℥. 3℞. iii. Corr. Granator. 3j. fol. et Fruct. Myrt. ar. 2℞. ii. Nuc. Cupress. 3℞. coque simul in aqu. Hordeat. Chalybeat. colaturam ferroa ad usum.*

Decoction.

CHAP. L.

Of Wounds of the Tongue.

WE are come now to speak of our good or bad Friend, called by the Greeks *γλῶττα*, being tyed within the pale of the Teeth, or imprisoned between the two barrs of the Teeth and the Lips. It's the notable Instrument both of Taste and Voyce; its Basis doth rest upon the Bone *Hyais*, in Man it is somewhat long, and sometimes seen to be longer in some Men than in others. It is soft, broad, and loose, that it may be conveyed, dilated and variously disposed; it is tyed to the *Larynx*, and to the *Os Hyoides*, upon which its Roots do rest. It's made of proper flesh, a coat, Nerves, Veins, Arteries, Muscles, and a Ligament; and this is very strong, membranous and broad: and so had it need, for the keeping up of the Tongue sometimes, and is as the bridle of the Tongue sometimes to curb its unruliness. It receiveth its Coat from that which doth also invest the Mouth, Palate, *Esophagus* and *Larynx*. It's spun and made of fine and thin Fibres, for the better reception of savours. Its substance is soft and rare, much like a sponge, for the more speedy moistning with the humour which doth carry this sapor in it; its fibres are expanded through the length of its muscles. Which is not so in the Tongue it self, It receiveth two Nerves from the third and fourth Conjugations. It hath two Veins called *Ranina*, issuing out of the inward branch of the external Jugular Veins. It doth receive its Arteries from the sleepy Arteries; it's framed of many Muscles, and hath many Muscles allow'd it at its thick end, and these do help forward its functions of

Of Wounds in Particular.

speaking, and rowling of the meat, and its tasting. Its muscles are in number five pair, thus called, *Styloglossi*, *Myloglossi*, *Genioglossi*, *Ipsoglossi*, and *Ceratoglossi*. And this Tongue, although it be but a little member thus furnished, is of great use, Expressing our Minds, and yielding us our tasting quality, being as *Hippocrates* writes, the messenger of the Brain; and is also very useful as touching life, for this helpeth forward Mastication or chewing, assisting also deglutition, by turning the meat over it, towards the Gullet: all which good turns it doth to Mankind.

Now as touching its Wounds. The Tongue being thus guarded with a Set of Teeth, and lodged within the Mouth, might seem to be defended against all outward Injuries, yet this is sometimes seen wounded: for when the Cheeks and the Jawes are wounded, the Tongue also may take share of the Wounds. And it may be so wounded, that even a part of it may be cut off, and here the loss is irreparable: If a part hereof doth adhere to the sound part, here it is not to be cut away, but rather to be stitced up. Wounds happening here are dangerous for these two causes, because here we can neither use dry stitch nor Ligature; and then because Emplastick Topicks have no power to hold on here. In every Wound of the Tongue, in which the sound part is cut or divided, the Lips are to be adjoyned; and this is to be performed by Suture, as *Aquapendens* teacheth it: which is thus to be performed; The Tongue is to be drawn forth out of the Mouth, being holden by the Hand by a piece of Cloath between, you are to make so many and so deep stiches as are to be taken, for the true union of the divided parts. The Wound being well stitced up, we are to cut off the thread near the Knot.

Next are we to use agglutinative Medicines, which may be made into Powders to be sprinkled into the Wound:

Wound: Such as are *Bol. armony*, *Dragons Blood*, *Myrtils*, *Balaustians*, and the like, being finely powdred for this purpose, this Decoction is very good, *R. fol. & fl. Ligustr. Plantag. Rosar. Rubr. an. M. j. Cort. Granator. Balaust. an. ʒ ʒ. Coquentur in aqu. Chalybeat. ʒ ij. ad ʒ. part. consumpt. in Colaturâ solve Acat. ʒ ij. Syr. de Bos. Sicc. ʒ ij. misce pro Decocto.* To this also may be added a little Allom, and let the Tongue and Mouth be washed therewith. If pain be present, Almond milk is good to wash it, let his Dyet be cooling, and he nourished with liquid things, as *Ptyfan*, Barley-Waters, Julep of Roses, and the like.

Decoction.

And as there is scarce a member or part of the Body which moves more, and is so moist and loose, so if this part be wounded transversely, it is altogether incurable; yet if it be not wholly cut off, it's not to be accounted incurable, as may appear by this following History of a Maid, who falling upon the Ground, having her Tongue extended, that part which was between her Teeth was almost cut off, and remained on only that space where she wanted two of her Teeth. *Hildanus* being called to her, who is the Author of this History, he tryed to Cure her this way and method, with the aforegoing Gargarisme or Decoction, with which the Tongue was washed oft-times in a day; after she held in her mouth Syrup of dried Roses, of Quinces, of Ribes, and the like, she drank nothing but thin Barley-Broaths, Almond-milk, and the like; and by these she was perfectly cured: neither was her speech any ways hurt, after which she lived for 12 whole years.

History.

CHAP. LI.

Of Wounds of the Neck.

HAVING run through all the Parts of the Head, We come next to the Neck, where we may meet with that part so properly called the Rock, which lyes just under the Head and Face, and upon the Breast. It obtains a round Figure, and because in these parts are found various bodies, and this wrought out of their diversity of works, these may shew diversity of Species in these Wounds. For besides its Muscles and *Cutis*, which it hath bestowed on it, in its fore-part it hath planted the *Aspera Arteria*, or Wind-Pipe, under which is placed the *Æsophagus* or Gullet. At its Sides are put both the Jugular Veins and Arteries; in its back-part may we see the Spine; forwards and upwards the Throat and *Larynx*; under it the Jugulars.

It shall therefore be Our present Task to Treat of these in their Order. And as from the Heart the great Artery, and from the Liver doth arise the great Vein, so from the Brain is produced a great Trunk extended through the whole Spine, which may either be called *Spinal*, *Dorsal*, *Cervical* or *Lumbary* Marrow. And hence the Neck, being as the Vicar of the Brain, or the *Medulla*, which is kept in the Spine, if this be cut or wounded in the middle, the Nerves are soon resolved and distended, the senses flagg, and the Sensifying Quality doth perish: and hence we do see the Patient to avoid both Urine, Seed, and Excrement voluntarily.

These

These Wounds are to be treated with the same Care as those of the Brain ; for a deep and penetrating wound happening here, doth produce direful Symptomes, causing hereby both loss of Sense and Motion. Now if the Neck be wounded in the fore-part, the *Aspera Arteria* and Gullet can onely be hurt ; if in the fore-part above the *Larynx*, the Jugular Veins and Arteries, if in the back-part, the Spinal Marrow ; and if none of these be hurt, no Wound here happening can be allowed dangerous.

And in all these cases we are to stop first the Flux of Blood, then to bring the Wound to a good digestion with this, *R. Terebinth. Lot. ʒij. vel ejus loco Ol. ejusd. ʒij. Ol. Rosar. ʒj. Aqu. Ardent. ʒ℥. misce.* *Digestivum.* And inject this hot into the Wound, and over it apply *Empl. de Betonic. or Diapalma*. If herein there be required *Sarcolicks* and *Epolanticks*, I have already given you a plentiful Collection of those which may be here used.

CHAP. LII.

Of Wounds of the Throat , Larynx,
and Wind-pipe.

IF a Wound doth happen in these Parts, as in the Throat or *Larynx*, these are the Signs; the upper part of the Neck, loss of Voice and Air happens: But when it reacheth the Wind-pipe, it is more dangerous, both in respect of the exquisite sense wherewith these Parts are indued, the *Æsophagus* hereupon tumifying, and so hindring Deglutition: Hence follows a decay of Nutriment, and danger of Suffocation; and also in respect of the Veins and Arteries herein lodged and inserted, and their perpetual motions; for it's hereby that the Air is conducted into the Ventricle, the which being hindred in its inspiration, doth soon occasion an expiration. Hence therefore may we account these Wounds dangerous, and yet not to be left unattempted without help, the Wind-pipe being the proper Instrument for Voice, outwardly being Cartilaginous, and inwardly Membranous and fleshy. When this is wounded, it is generally known by the Senses, oft-times the Wound is occult, and the rather because here is no large Flux of blood follows these Wounds, but sometimes Pain, sometimes there is perceived a stinking Breath, hoarseness of Voice, a dryness of the *Fauces*, and in process of time the Patient doth become Empyemated. When Wounds only reach the outward Parts, these may easily be cured; but when the Cartilages are divided, these are rarely cured, these Parts being both hard and exsanguial, and continually in motion, and accompanied with frequent Distillations, these being sufficient impediments to hinder

hinder Agglutination. Besides which also, if any Humour do accompany this Wound, it shuts the passage, and doth make a fair way for Suffocation, the *Oesophagus* being hereby compressed. But to treat of every of these apart, beginning first with those of the Throat.

Cure of
Wounds of
the Throat.

If any one be stabbed with a sharp-pointed Instrument, as by a Pen-Knife, Dagger, or the like, and the Wound hath not touched the Wind-pipe, you are here, if a large Flux of blood follow, to stop this by such proper Medicines, as I have already proposed for performing the same. The next Dressing may you apply to the wounded Part, a mixture of Myrrh and Aloes dissolved in Brandy-wine, with which the Part wounded is to be dressed; after this digest, incarne, and procure a Cicatrice, as you have Directions in the former Cures.

As for the Cure of Wounds of the *Larynx* or Wind-pipe, if the Wounds be made transversely, let the Patient bend himself forwards; if it be straight, according to the length of the Pipe, here the Patient is to hold up his Head, hereby bringing the lips of the Wound together; then stitch up the Wound artificially; and for this Use, such Pins as you use in the Cure of hair-Lips are best here. This being done, agglutinative Medicines are most useful, such as is *Linimentum Arcei*, *Balsamum Peru*, *Balsam. Lucatell.* and that *Unguentum Hispanicum* which *Aquapendens* writes of in *lib. de Vulnerib. lib. 2. fol. 805.* above which may be applied *Empl. Diapalm. de Minio, de Betonica*, or the like. In these Wounds are you to take especial care, that none of your Medicines do touch the Wind-pipe so as to enter it, for hereby may you procure Suffocation. Inwardly here also may you order the Patient to drink warm Milk by degrees, or some magisterial chalybeated Decoction, adding hereto Comfrey, Centaury, Betony, or the like; or such an *Eclegma* as this: *R. Rad. Consolid. major. sub* *Eclegma.*
prun. coct. ʒij. Pulv. Tragag. Arabic. an. ʒij. Bol. armon. ʒj.

Cure of
Wounds of
the *Larynx* and
Wind-pipe.

Of Wounds in Particular.

Spec. Diatrag. frigid. ʒjß. Syr. Rosar. sicc. Myrtin. an. q. s. fiat Eclegma; and let the Patient keep this in his mouth. If the Wound be large, narrow it with a Stitching, or part thereof, and with a deep Suture, applying over it *Empl. Barbarum*; or this Medicine: *R. Terebinth. lot. in aqu. Consolid. major. ʒß. Vitell. Ov. n. j. Mastich. Cort. Thur. an. ʒj. Croc. ʒß. misce.* And this procuring a fair Cicatrice, next apply a Sarcotick Powder, which is to be sprinkled upon the Wound, for filling it up with flesh. *Hippocrates* doth write, That the Greater Centaury and *Terra Sigillata* are of great virtue, being inwardly prescribed, in these Wounds.

To conclude this, take these Examples:

History.

Benedictus Bonacursius saith, That he cured one who being in Prison, wounded himself with a sharp Knife in the Throat, which Wound penetrated the Wind-pipe, so large that one might put his Finger into the Wound, so as both his Nutriment which he took, and the Medicines which he received, came out by the Wound, and yet this Man was in few days recovered.

Another.

I in this City cured an old Woman, who in a melancholick & desperate humour was resolved to cut her own Throat; and for compleating this, having a Pen-Knife by her, sending her Daughter out, without mistrusting any such matter, she continued some while abroad before she returned; her Daughter being gone, she shut the Door, and stabb'd her self so in the Throat, that the Wind-pipe was penetrated; she bled very much: I being sent for, seeing her bleed very plentifully, I stopt the Flux; and the second Dressing I drest her with a Digestive, much according to that which I have already set down; then I filled the Wound up with flesh, and skinned it up, applying a Candle to the Wound, you might easily see its flame to yield to the wind which came from the wounded Part.

And

And this is worthy note which *Bodinus in Theatro Na-* Another:
tura mentioneth *lib. 4. pag. 460.* why such who have their
Larynx wounded, do both lose their Taste and Speech;
where he writes, That *Gulielmus* Prince of *Orange*, ha-
ving received a Wound in his Neck, had lost the
Sense of Tasting; and that a *French* Souldier by the like
Wound became mute. There is a double Nerve insert-
ed in the *Larynx*, which ariseth from the 3d Conjugati-
on, one part whereof doth make the Tongue apt for
Speech, the other part for perception of Smelling or
Sapour.

Another having received a Wound in the *Aspera Ar-* Another:
teria, the Wound being obliquely made, divided 3
Cartilages, insomuch as the Patient could hardly make
a noise or speak; the Wound was sticht up, and then
was applied this following Medicine: *R. Thur. Mastich.* Pulvis.
an. 3j. Bol. armen. 3ij. Farin. volatil. ʒi. misce. These
being beaten up with the white of an Egg, and made in-
to the form of a soft Cataplasme, was applied to the
wounded Part with convenient Ligatures. Inwardly
was prescribed him some *Loboc Sanum*, and he left it the
3d day, in which time did arise a most intense Fever,
and a great Inflammation of the *Fauces*, and when the
Parts were unrouled, they were seen corrupted with a
Gangrene and *Sphacelus*, and in that day about night
the Patient shut up his last minute.

I shall not add to this Discourse, Wounds either of
Veins or Arteries, but shall rather desire you to cast your
eye on my Treatise next to Wounds of the Heart; for
as the Arteries have their Originations from the Heart,
I shall refer you thither for the Cure of these, that
being their Origination, this place as others but their In-
sertions, and the Cure of any of these not differing, be
they wounded in what part of the Body soever.

CHAP. LIII.

Of Wounds of the Oesophagus.

WE come next to the *Oesophagus* or Gullet, called by the *Greeks* οἰσόφαγος, from οἶω xὶ φαίνω, which signifies to carry Meat. The *Arabians* call it *Merri* and *vescet*, the *Latines*, *Gula*, being as the common road, or as we have it in our *English* Proverb, *Gutter-lane*, to conduct Victuals from the Mouth into the Stomach. It begins at the lowermost Cavity of the Throat, at the Roots of the Orifice of the Stomach, it marcheth in a direct Line along the 5th Spondyl of the Breast, somewhat inclining to the right side. In its Origination it's tyed to the Throat, by that Coat which incompasseth the Mouth, to the Ventricle by its Continuation, to the Bodies of the Spondyls, to the Weazon and adjacent Parts by the help of Membranes. Its Figure is round and long. Its Substance is of a middle substance between Flesh and Nerves. It hath allowed it 3 Coats, one common, and two proper: The first is bred out of Ligaments, made as its Case for the two proper Coats: The 2d is fleshy and thick, looking towards the Neck, having in it only transverse Fibres: The 3d is of a dissimilar Substance, within whose inward Superficies is superstrated a smooth and oleaginous Veil, having in it right and slender Fibres, to draw nourishment after the Mouth hath received it. The act of Deglutition is helped by its Muscles, but these are accounted amongst the Muscles of the *Larynx*. Its Cavity is always kept moist by its Glandules called *Tonsilla*. It hath but few Veins and Arteries. Its Nerves are notable, coming from the 6th pair, and these at length are fastned into the Stomach.

It's

It's of great Use, being as a Tunnel to let through both Its Use.
Meat and Drink.

Thus have I shewn you how the *Oesophagus* is placed between the *Fauces* and the *Os Ventriculi*, being as its general Receiver, being framed both of a nervous and fleshy Substance ; nervous, that it may extend it self upon occasion ; and fleshy, that it may fall again.

Wounds happening here are very perillous, because both Meat and Drink do pass through it, which do hinder Agglutination.

Wounds here happening may be known by their Site, sometimes by the Sense of Feeling ; for this is carried in a direct and strait Line all along, under or beneath the Wind-pipe, and when this is wounded, either Blood or Matter is vomited, and the indigested Nutrimment doth sometimes pass through the Wound. When the Patient lyes down, he feelerh much pain between his Scapula's, but upon straightning his Neck he feels some ease. When any Tumour doth arise here, it doth narrow the passage, and doth occasion a Fever, and a great sense of Inflammation. Hence therefore in these dangerous cases *Celsus* adviseth the Chirurgeon, to study and consider which of these Wounds are curable, which hard to cure, and which are incurable ; and not to undertake the last, but with honesty to acquaint the Patient's Relations and Friends of the desperateness of the Hurt, lest he by his improvidence and inconsiderateness gain the discredit of being either ignorant or deceitful.

These Wounds sometimes do prove lethal, the meat Cure.
and drink passing hereby, hindring agglutination ; and although the best which happens here may not be reckoned without hazard and danger, yet being by daily Experience satisfied, that many here wounded have been cured, is encouragement enough for us to declare the method here to be used. And here by *Hippocrates's* authority we are to prescribe inwardly a gentle and thin

Of Wounds in Particular.

thin Dyet, this by degrees to be taken ; here therefore the Patient is to lye downwards, holding the Medicine in his mouth as long as he can ; for a perpetual Mastication in the mouth doth much detard Agglutination. Let his Dyet be liquid, and nourishing, if it might happen here to you as it hath to some others, that deglutition is altogether ablated, that nothing may descend this way into the Stomach, in these cases that the Patients may not famish, we ought to inject nourishing Clysters according to the advice of *Oribasius* and *Aetius* : if need requires your assistance of prohibiting the flux of Blood which may happen here, in this case may you safely use *Troch. de Spod.* or *Terr. Lemn.* attenuated with a little Purslane-water, or Spawn-water. Or if these be not in readines, to take some Chalybeated Water, which is to be used as the other.

Decoction.

If here we should come to Deterging, we may safely use *Hydromel* or *Julap. Rosar.* Or this Decoction, *R. Herb. Sanicul. Centaur. Minor. Equiset. an. 3 iij. Hord. Mundat. M. ij. Passular. Jujubar. Liquirit. an. 3 vj. Coquantur Omnia in aquâ Chalybeatâ & vino simul mixt. ad Tert. part. consumpt. colatura adde Syr. Rosar. 3 iij. Mel. Rosar. 3 ij. iterum parum ebulliant & cola.* But where you use Honey, *Galen* adviseth not to boyl this, but rather to add it in the end ; for boyling of it doth make it more rancid. When you would use Incarnatives or Sarcoticks, then are we here to add Agglutinatives. And in

Unguent.

this case *Empl. Sanctum* is admirable, formerly shown you : Or in the want thereof, to use this, *R. Terebinth. Clar. aqu. Consolid. lot. 3 iij. Pulv. Myrrh. Thur. Alo. Bol. armen. an. 3 B. misce & fiat Unguent.* Or this, *R. Thur. Myrrb. Terr. Lemn. Galban. an. 3 iij. Chalcit. Alumin. Roch. Spum. Argent. an. 3 ij. Resin. Terebinth. 3 x. Ol. Myrtin. 3 j. Cer. flav. q. s. fiat Unguent.* These to be applied without Tents or Lint, over which may be applied *Empl. Diapalma de Betonica*, or the like.

Another.

To conclude this, A Saylor being wounded by a broad Knife in the 5th *Vertebre*, vomited a great Quantity of blood, and in his Vomiting some part of the Chyle which was contained in his Stomach passed out of the Wound, whence was suspected that the *Oesophagus* was hurt; it being examined by the Probe, did evince the same. For which was prescribed this Medicine, *R. Terebinth. aliquot. lot. in aqu. Malv. 3j. Syr. de Ros. sicc. 3 iij.* Another.
Bol. armen. 3j. Sang. Dracon. Mastich. Farin. Volatil. an. 3j. Med. Virell. Ovor. misce. Tents being herewith armed, were put into the Wound, over which was applied *Empl. Diapalma*, inwardly did he take this following
Loboc. R. Syr. de Ros. Sicc. Cydonior. an. 3j. Myrtin. 3vj. Digestum.
Pulv. Sang. Dracon. 3 iij. Bol. armen. 3j. misce. After which was ordered this following Decoction, *R. Hord. mundat. M. j. Bulliant in f. q. aqu. ad Crepat. add. Herb. Hyper. Pilosell. Alchymil. an. p. iij. Pirol. Consol. Sarracen. an. pug. ij. Cort. Granator. 3j B. Rad. Pentaphyl. Tormential. an. 3ij. Sem. Coriandr. preparat. Anis. an. 3ij. Cinnamon. 3 iij. Coquantur omnia simul, & colaturam serva ad usum.* Loboc.
 Of which Decoction he took 3 ounces a day with the aforesaid Syrups: Part of which was injected into the Wound by a Syringe, in the interim he was perplexed with much Pain and Inflammation, an Iunction being made of the Oyl of Roses, over which was applied a Cataplasme made of the Crums of Bread with milk, the yolk of an Egg and the like; this to be used to the 14th day: The meat and drink which he took inwardly was thin, and flowed out of the Wound; and the 15th day being expired, no further Matter past out: Hence the *Oesophagus* being judged to be consolidated and agglutinated, the Tent from that time being made shorter, was at length covered with an Incarnative, and the Wound in 24. days perfectly Cured and Cicatrized. A Consolidating Decoction.

CHAP. LIV.

Of Wounds of the Spine.

Preface.

NExt arrive we to Wounds of the Spine, or the Back-bone seated in the back-part of the Neck; if the Wound do not pass the Spine, it then doth divide the Muscles, and in this case are you to dress this Wound as you do those of the fleshy parts, as *Aquapendens* orders, fol. 913. *De Vuln.* If the Bone be injured by the Wound, dress this as you do a Fracture in *Cranio*. If the *Spinalis Medulla* be wounded, it is either wholly or in part divided. If it be wholly divided, it occasions a perfect resolution of the Body, causing here a deprivation both of Sense and Motion: If it be but cut or divided in part, hence followes Convulsion, and oft-times death. In these cases therefore are to be applyed such Medicines as may ease Pain, stop or prevent Convulsion, and cure the Patient. Wounds here happening, are of no less danger than those of the Brain; for the Spinal Marrow hath its Origination from thence, and has its Coats covered with the same Membranes as do cover the body of the Brain. It hath Nerves allowed it for yielding it much Sense; and its Motion and Sense it hath from the same Principals: And since Topicks can scarce reach it, and the direful Symptomes which attend these Wounds, as Palsey, Convulsion, Deprivation of Sense and Motion, and the like, these Wounds may be well reckoned dangerous.

Hippocrates doth reckon them Lethal; yet that such have been cured, Experience doth evince: And how to cut this part, be pleased to take with you these Directions: In all desperate cases of this sort, our later Practitioners, the Blood being stopt, do use hot and dry Medicines, being of thin parts, that they may the better penetrate

netrate into the depth of the Wound ; and therefore in these cases we are to use such Medicines as be of a thin, liquid, and moyst substance ; of which sort are *Ol. Hyperic. Ol. Lumbricor.* and the like. Or here also may be used *Ol. Chamomil. Vulpin. Ovor. Mastichin. Terebinth.* or the like. Or *R. Ol. Hyperic. Ovor. an. ʒ j. Terebinth. ʒ ʒ. Theriac. Andromach. ʒ ij. misce.* Or *R. Ol. Vulpin. Lumbricor. Terebinth. an. ʒ ʒ. pulv. Mastich. ʒ ʒ. misce.* Turpentine here is a very good Medicine, being well washt, adding to it the yolk of an Egg, a little fine Powder of Frankincense & Saffron, the which may be used to the 4th day, anointing all the circumjacent parts with Oyl of Roses, Chamomile and Mastich. The 4th day being past, adde to these some Syrup of dry Roses, Myrrh, and Aloes, in that body and thickness as they cause no pain in the Wound by their alperity ; the which being done, leave out the Turpentine : the pain being asswaged, cover the Wound either with *Aureum* or *Basilicon*, or the like, applying over it *Empl. De Betonica* or *Diapalma*, and then procure a Cicatrice.

Forest. fol. 18. lib. 6. Obs. Chir. writes, That if the Spinal Marrow be wounded about its beginning, death must necessarily follow, because a Convulsion of the whole Body doth succeed : but if it be wounded in the lower part, this is not so deadly, unless the Wound be large, or made by apuncture, although Convulsion doth succeed it.

Forestus, Obs. 46. lib. 6. fol. 230. writes of one being wounded under the *Scapula* in the Back, the Wound penetrating the *Thorax* and *Spine*, at the which time a Wound happened in the flexure of the Cubit of his Arm; hence he spit much blood, which denoted that the Wound had penetrated the *Thorax* in its back-part, and he threw forth concrete blood downwards. He being called to this Patient, for diversion sake in the Arm of the contrary side breathes a vein, and the Wounds were thus handled by *Petrus* a Chirurgion of *Delph*, and *Gerard*

History.

Of Wounds in Particular.

Decoction.

the Younger: Presently after the breathing of his Basilick Vein, this Decoction was prescribed him; *R. Caul. Bub. Scabias. Veronic. Cap. Vener. Polytric. Ungul. Caballin. an. M. j. Hord. mundat. pug. j. Rasur. Liquirit. 3vj. Uvar. passul. enucl. 3j. Fijub. Sebast. an. n^o. 5. Coquantur in aqu. Com. ad lbj. Colatura Syr. Cap. vener. 3j B. Violar. Fijub. an. 3 B. misce pro Apozemate*, to be taken twice in a day.

Eclegma.

For his Cough he was Ordered this *Eclegma*, as also for his spitting of blood; *R. Cons. Borag. Diatrag. frigid. an. 3 iij. Syr. Cap. Vener. 3j. Syr. Violar. Fijub. an. 3 B. misce.* This he took oft-times with the end of a Lyquirice-stick well beaten and bruised: after this he began to grow Feverish, and therefore his Breast was embrocated, not onely for removing the pain, but also for dispatching this febrile heat, with this following Unguent; *R. Unguent.*

Unguent.

Decoct.

Resumptio. 3j. Afterwards he took of this following Decoction at his pleasure, *R. Hord. Commun. M. j. Liquirit. Ras. 3 B. Cap. Vener. Uvar. passar. an. M. B. Sem. 4. frigid. Major. an. 3 B. Cicer. Rubr. 3j. Coquantur in aqu. com. ad lbj. Colatur. addendo Syr. ex infus. Rosar. Violar. an. 3 B. pro Julapio.* With these and the like inward Decoctions, the Patient recovered of his deplorable Condition, and was cured of his 3 Wounds: And for the mundifying and incarning thereof, this was used, *R. Mel. Rosat. Colat. 3 iij. Farin. Hord. 3 B. Terebinth. 3 iij. Cer. Resin. an. 3 ij. Thur. Mastich. an. 3j. Myrrh. Sarcocoll. Mum. an. 3 B. Ol. Mastich. 3 iij. M. fat Empl.* Thus have I run through all the Wounds which do or may happen in the upper Region; We descend now to the middle Venter, where we shall Express all the Parts, their Wounds, Signs, Prefages and Cures.

Empl.
Lanfranci.

CHAP. LV.

Of Wounds of the Thorax.

HAVING already finished the first Part of my Discourse, which treats of the Upper Parts, let me in this bring in an Anatomical Discourse of this middle Region of Life, and that with a more chearful spirit, by how much it is more noble and excellent than the former. For as Cosmographers do in a small Map comprehend the Circuits, Regions, Islands, Promontories, Fields and Valleys of the World, so may we in this our second Discourse, comprehend the Greatness, Structure, Site, Figure, and all exteriour and interiour Parts, contained and containing in this Region, the which Region doth come under the Name of *Thorax*; so called either ἀπὸ τοῦ Δορεῖν, which is *Salio*, the Heart herein being always in a leaping motion; or as the Stoicks affirm it, περὶ τὸ θεῖον ὡρεῖν, *Quod mentem Divinam animi partem denotat*. This describeth the whole Trunk of the Body, and whatsoever is extended from the Jugulars to the Xiphoidal Cartilage and *Diaphragma*, comes under the Name of the *Thorax*. It is circumscribed in its upper parts with Clavicles, in its lower part with a *Diaphragma*, in its fore-part with a *Sternum*, in its back-part with the Vertebres of the Back, in its right and left side with 12 Ribs. Its Figure is beautiful and capacious, partly boney, partly fleshy; boney, for the strengthening of its most noble vessel the Heart; fleshy, for the more easie motion of its *Diastole* and *Systole*. It obtains a Cavity between the upper and lower middle Region, for the more equal diffusion of its native heat into all the simple parts. It's framed of parts containing and contained;

Of Wounds in Particular.

the containing parts are some of them Proper, others Common: The Common are 5, *Cuticula*, *Cutis*, *Membrana Carnosa*, *Adeps*, and *Nervosus Panniculus*. The Proper are brought under these 3 heads or distinctions, as some being soft and fleshy, others boney and Cartilaginous, and the third Membranous. In this are locked up the vital Instruments and Wheels of Life, the rare Organs of Musick, whereby the Voice is so diversified, called by *Hippocrates* *χελυς*, a Cittern, making here its Musick. Here may we see the Heart display and communicate its vital spirits; how these do quicken and strengthen the natural heat of the whole Body; how the Lungs as fresh Fans do cool its heat, and by their motions as Bellows blow it up again, if occasion requires.

But to fall upon its harms; before we enter upon the Discourse whereof, be pleased to consider what noble Parts it containeth in it, and enwraps. It's outwardly guarded with *Intercoastal Muscles*, interwoven between the Ribs, and filling up the Distances between them; and these by some are reckoned to be in all 44, these also being of great use, being formed obliquely; for we generally see that they help Dilatation; for every thing retcheth which is obliquely made or obliquely drawn; these Muscles, by the general opinion and consent of all Anatomists, do serve for Constriction and Dilatation of the *Thorax*. Next may we meet here with a *Diaphragma*, which signifies to distinguish, this distinguishing the Instruments of Nourishment, from those of Life and Respiration, or is as an overthwart partition. After this appears a *Pleura*, so called from the Ribs, which by the *Greeks* are called *πλευραι*, this being stretched under them all, excepting the 12th. This Membrane doth inclose the whole Cavity of the *Thorax*, and doth answer its Figure and Magnitude. This is all over double, partly because of the hardness of the Bones, and partly

partly because betwixt both the Membranes, the Inter-costal Vessels might more safely pass. Next this is *Mediastinum*, so called from dividing the Chest in the middle. *Columbus* doth call it *Intersepimentum*, being as a Hedge dividing two Pastures. This holds up the Heart, and serves as a security for the passage of the Vessels. After this may we see the *Pericardium*, by the *Latines* called *Capsula Cordis*, enwrapping the Heart, and carrying in it its Pyramidal Figure, arising from its Basis, produced from the Coats which the *Pleura* doth afford the four Vessels, which do issue out of the Heart. Its contained Parts are double, as Vessels and Bowels: The Bowels are two, the Heart and the Lungs: The Vessels are the Branches of the great Vein, and the great Artery, born up into the hollow part of the Throat with a glandulous Body called *Thymus*.

But because I intend not to trouble you with these twice over, I shall as I discourse of these Parts being wounded, give you a brief Description of every of them as they fall in their Order.

And first as touching Wounds which may happen in the outward part of the *Thorax*.

Wounds here happening are either allowed to penetrate or not penetrate the *Thorax*; and such as do penetrate, may either be made with or without offence; and this offence may be manifold, as either wounding the Heart, Lungs, *Pericardium*, *Diaphragma*, great Artery, or ascendent Vein.

To know a penetrating Wound may be by these Signs manifested: If the Wound penetrates far, the sending in your Probe or searching Candle will give some satisfaction hereof; or if it penetrates, Cotton or Wool being put to the Wound, you shall see it give way to the Breath which comes out of the Wound. If the Patient doth shut his Mouth and keep in his Breath, the Wind will break through the Wound with a noise, so as a Candle

Of Wounds in Particular.

Candle being applied to the Orifice, the Wind will dissipate the flame of the Candle. Yet sometimes if the Wound happens near the Mouth of the Brest, Air may come forth, and the Probe may pass a great way in respect of the great space and Cavity, which makes the intersepient Membranes, separating and distinguishing the Cavity of the *Thorax*.

Preface.

Wounds happening in the back-part of the *Thorax*, are most dangerous, because in this Part are planted most Nerves and Tendons; and as *Hippocrates* writes, Every Wound of the *Thorax* goes not without danger, in respect of the Matter which falls down into the Cavity thereof. If the Heart be wounded, the case is desperate, or if the *Diaphragma* in its nervose Part, or if the Lungs be largely wounded, or the *Pericardium*. But more of these in their proper places.

Arcæus cap. 1. de Curand. Vuln. fol. 71. writes, That he hath seen many pretend the curing penetrating Wounds of the *Thorax*, the which they either scarce obtained, or else speedily after procured the death of their Patients, although these Wounds were not of their own nature lethal. And whereas it is the general opinion of all Authors, Wounds deeply penetrating the Brest, are for the most part incurable, and that such who have gained ground of these Wounds, do generally labour under a *Phthisis*, or a perpetual Fistula; yet some have been cured hereof without either of these. And for curing these Wounds, let this be your Method: In not penetrating Wounds, the same Cure is to be used here as you are directed in a simple Wound. In a penetrating Wound the ordering of the whole Body is to be regarded, both for the evacuating and discharging of Blood, Humours, Matter, or Excrements, which may fall from the wounded Part into the Cavity of the *Thorax*, lest being therein left, they corrupt and putrifie, and so bring death in the end: And these may be 3 ways discharged; as either
by

by the Orifice of the Wound, by the Mouth and Coughing, or by Urine. Now when Blood or Matter is coagulated in the Cavity of the *Thorax*, it is attended with pains of the Sides, and a heaviness about the false Ribs, accompanied with purulent Spittles, a fetid Breath, and a troublesome Cough, and a Fever molesting the Patient. And hence because the outward Air being altogether unprepared, doth rush and pass hither, it doth much offend the inward Parts, and the inward Air passing out hereby, doth both weaken, hurt and dissolve the strength and vigour of the Parts. And another ill Symptom which attends these Wounds, is, they cannot outwardly or conveniently be deterged, and hence they degenerate into Fistula's and Empyema's, exciting there their purulent Collections, and hence death follows. And such who upon receiving a Wound here, have annexed therewith a Vomiting and Syncope, or Looseness, death is sure to catch hold of these.

But to return to the 3 former proposed Intentions, beginning first with the discharge by Urine. And in these cases the Medicines here to be used are called *Diureticks*: And *Gal. lib. 5. de Loc. affect.* writes and affirms, That those things which are lodged in the *Thorax*, are to be carried off and expurged by Urine. And hence he supposeth that the Matter is first carried into the Branches of the *Vena Azygos*, hence into the *Vena Cava*, to the right Ventricle of the Heart, and passing thence downwards from the descending Trunk of the *Cava* to the Liver, to come to the Emulcents. But this is a great way about. But *Nicol. Novocomensis* an excellent Physician saith, That it passeth from the *Vena sine Pari* near the *Diaphragma*, and is carried by a direct ducture through the Spine to the Emulcents, and doth give us this History, for the better crediting of the former:

Of a Friend of his which received a Wound in his *History. Thorax*: The Wound was not by the Physicians found pene-

penetrating, because in respect of the narrowness of the Orifice, no great part of the Probe did enter into the Wound; the flesh also stoppt the Cavity thereof, so as neither Spirit or breathing might pass through it; yet out of the supervening accidents the Wound was conjectured to be penetrant; for above the *Diaphragma* was felt a heaviness, he spit blood, with Coughing, accompanied with Fever, Watchings, and sometimes the Part appeared blewish about the Ribs, wherein was contained Matter. And for this discharge, they consulted to open the *Thorax* between the 6th and 7th Rib, the day before which this should have been done, it happened, that the Patient let forth about an ounce and a half of bloody Matter, by which he was freed from all his pain, Fever, and other Symptoms; in which cases were used these *Diureticks*. These being present, was prescribed him a Decoction made of Maiden-hair, Parsly-roots and Betony; and if no Fever was present, to the former was added Smallage and Fennel. In his Diet is to be observed, That in these Wounds all Inflammation be abated, and for this was given him *Ptyisan*, with cold Seeds.

The 2d Way.

The 2d way is the discharge of this Matter by the Mouth; and for this Use *Posca* being taken lukewarm, is good, Vinegar doth wonderfully discuss and dissolve the concrete Blood, and *Galen* ordereth to obtrund its Acrimony, by adding much Water to it; in this case cooling Syrups do well, and do work by Urine. Here also are we advised to observe, That if the Patient do cough much, to make it more easie to him, we may order him Syrup of Lyquirice, Oxymel, or Syrup of Vinegar.

The 3d Way.

The 3d is performed by the Orifice of the Wound, the which some will have speedily to be shut up, lest hereby the vital spirit might expire and spend it self, and the outward Air passing in at the Wound may corrupt the inward Parts. Yet this is contrary to Sense, Reason
and

and Experience ; for the Wound is to be kept open, for this Matter is not easily or readily to be discharged by Urine, nor yet emptied out by the Mouth, the Orifice of the Wound being the best and most ready way to discharge the same ; and this is to be performed by Tents or Pipes.

But to come close to the genuine Intentions herein required, and afterwards shew you how this is to be treated : Intentions.

And herein are 6 Intentions which offer themselves : As first, To stop the Flux of Blood. 2dly, To prevent all Fluxion. 3dly, To discharge the contained Matter. 4thly, To deterge and dry up the Wound. 5thly, To order the inward Parts aright. And then lastly, To prevent all other Accidents.

As for the first, I have sufficiently already enlarged. But because here some of the concrete Blood may be lodged in the Cavity of the *Thorax*, this is both necessarily and speedily to be suppurated. And hence therefore Wounds of the *Thorax* are presently to be agglutinated, or kept open, being consentaneous in a Cut where the great Veins and Arteries are untoucht, and when no Flux of Blood doth appear here to speed Agglutination, either by Suture or Ligature, or any other ingenious method ; for thus the Parts may be united, and the innate Heat preserved, and the Matter discharged by the Mouth. But if there be any suspicion of coagulated or concreted Blood, the Wound is to be kept open, for the discharge of all Matter and Excrements : And for this Use some do make use of leaden Pipes, which they have made for the same purpose, to convey and draw forth this Matter, called by the *Greeks* *Piuleus*, or *Eductorium* ; the Matter being discharged, the Parts are to be united and dried up.

But a little further, as touching the coagulated Blood, it being a matter of great concern in this place : Here are

we not to study too speedy an union of the Parts, until every ill Juice or Matter be expurged and discharged. The Wound therefore, as I formerly have writ, is to be kept open by Tents, both for the preserving the noble and ignoble Parts entire. Hence ought the careful Chirurgeon to examine well the affected Parts, and then to the discharge of the Matter; this is to be done by its proper places; the Blood being suppressed, the Wound is to be roul'd up.

The 2d Intention.

The next Intention here required, is, in great and deep Wounds to hinder all Humidities or Humours, coming from any other Part of the Body to the affected Part; and this is to be performed by breathing a Vein, and Purgation, Cupping-glasses, Ligatures, and the like, as I have already shewn.

The 3d Intention.

The 3d Intention is the discharge of Humours and Matter lodged in the Cavity of the Thorax, and for this Use take this: *R. Resin. Pin. Visc. Quercin. Mel. Ammoniac. Galban. an. ʒij. Cer. ʒij. liquefat Cera, postea Resina, tunc adde pulv. Aristoloch. Rot. Rad. Consolid. major. an. ʒß. & fiat Unguent.* Or *R. Ferment. acr. Axung. Porc. an. ʒij. passulax, enucleas, ʒj. Terebinth. venet. ʒij. Ammoniac. Galban. an. ʒß. Cer. q. s. fiat Empl.* Or this Unguent.

Unguent.

Empl.

Another.

Empl. Sanctum.

tum Sanctum, so much esteemed for its admirable quality, which it shews in this Cure, for it doth excellently digest and strengthen the Parts, and discharge every Excrement safely from the very bottom. This is its Composition: *R. Resin. Pin. recent. clar. & odorat. ʒxij. Ol. Laurin. opt. Terebinth. venet. an. ʒij. Gum. Elemi ʒiij. misceantur Resina & Gummi simul, & lento igne liquefiant semper agitando cum Spatha, tunc adde Ol. Laurini & Terebinth. & iterum parum bulliant, semper movendo ad Empl. formam.* And when you apply this to the wounded Part, let it be spread all over the circumjacent Parts.

In some cases Injections are also very beneficial; neither are externals, but internals also very requisite. I have

have already enlarged on this subject in my Treatise of Tumours, there discoursing of *Empyemae*; and therefore shall abbreviate here. The Matter being discharged, the place is to be mundified with *Mellicrate*; and if you desire a greater dryer, add hereto *Agrimony*, *Centaury*, *Adders Tongue*, *Betony*, in Wine adding to the strained Decoction a little Honey; this to be injected into the part. If a plenty of Matter appear, and these be too weak, we are to give inward Potions and Decoctions, as this; Decoction.
*R. Caryophylat. Rad. Arthemef. Pimpinell. Pentaphyll. Vio-
lar. Caul. Rub. an. ʒj. Rub. Tinctor. ceter. quantitas Co-
quantur in vino.*

Theophrastus doth much commend these, as *Sanicle*, *Avens*, *Perwinckle*, *Trefol.* and *Ground Ivy*, being boyled in white Wine, adding to the clear Decoction a little Honey; and of this let the Patient drink 4 ounces three times in a day warm.

There was an Old Emprick who in all Chronick Distempers and old fistulated Wounds used this Decoction; Decoction.
*R. Cinnamon. Zinz. Caryoph. Piper. an. ʒ iij. Coquantur
contus. in mensur. 6 vini albi usq; ad 3tia partis consumpt.
coletur & servetur. tunc Recipe Caryophylat. Valerian. Pillo-
sell. Centaur. minor. Rub. Tinctor. Arthemef. Pimpinell. an.
M. ʒ. Exsiccantur & fiat omnium pulvis subtilissimus, ac-
cipe hujus Pulveris ʒ ij. Decoct. predict. ʒ vj. to be taken
the first thing every morning; And by this method he
cured very many of these Wounds without any other
help.*

This Powder used for the same effect is very admirable. Powder.
*R. Caul. Rub. sem. Canap. consolid. minor. Caryophy-
lat. Pilosell. an. M. j. Rub. Tinctor. M. ij. misce, fiat pulvis
subtilissimus dos. ʒj. in vino albo.* While these are in-
wardly taken, the outward Wound is to be brought to
digestion by Turpentine, the yolk of an Egg, a little Fran-
kincense, *Basilicon*, and a little Powder of Saffron; and
if you intend to mundifie, add a little Honey and mix
L l 2 with

Of Wounds in Particular.

with the former ; then fill up with *Unguent. Aureum* or *Fuscum*, and skin with *Diapalma* or *Desiccativum Rubrum*. Having thus run through all the general Parts and Intentions of Wounds of the *Thorax*, give me leave a little further to shew how the Patient is to be placed, the Patient being laid in his bed, stretched out to his full length, and the Orifice of the Wound downwards, let him thus continue untill the Chirurgeons dressings be all ready, hereby endeavouring to discharge all contained blood by Coughing or the like. Then put into the Wound a *Flamula* or Silver Pipe, such as are used in a *Paracentesis*, dipt in the white of an Egg, having a stay on both sides hollowed to receive a thread; and this is to be used untill the Matter doth abate: when this affords but a small quantity, procure a speedy Consolidation either with *Linimentum Arcæi*, who is the Author and Director of this method, or *Balsam. Peruvian.* or any other the like Consolidating Medicine, over which apply *Diapalma*: These things being done, you may, if occasion require, breathe a Vein, and then administer this Vulnerary Potion; *R. Rhubarb. ʒ℥. Rub. Tinctur. Mum. an. ʒj. Terr. Scillat. ʒ℥. Aqu. Scabios. Bugloss. & Succ. granator. an. ʒj.* After this he adviseth this Decoction; *R. Hord. mundat. ʒiiij. Passular. enucleat. ʒiiij. Rad. Bugloss. ʒij. Liquirit. contus. ʒiiij. Fufub. n^o. 20. prunor. n^o. 15. Rad. Petrosilin. contus. M. j. fiat Decoct. in aqu. Pluvial. lb 14. ad Consumpt. tertiz partis. Aromatizetur decoctum cum Cinamom. ʒiiij. et Coletur. in Colaturâ solve Penid. ʒiiij. Syr. Rosar. Simpl. de 2. Radic. sine acet. an. ʒij. Sacchar. condit. ʒiiij.* of which the Patient is to take 6 ounces every 4th hour, he being ordered to take no other food for 3 days. And to conclude this Discourse, when the Patient doth breathe freely, findeth little pain, and no weight about his Midriff, and the Quitture be small and laudible, then is it time to shut up. And I with it shall shut up this Discourse with some Historical Observations.

Potion.

Decoction.

The

The first is of a Gentleman, who having received 3 *History.*
large Wounds, but the chiefest of which happened under his right Brest, penetrating deeply between the space of the *Thorax*, whence happened a large Flux of Blood into the *Diaphragma*, upon which succeeded a Fever and vehement Coughing, with a sharp pain in the wounded Side. I being called, I ordered the Patient to lye with his Head downwards, and to shut both his Mouth, Eyes and Ears, hereby forcing the Lungs to send forth the contained blood by the Wounds. After this I put my finger into the Wound for the better educing of this blood, the Patient being laid into his Bed again, I injected frequently into his Wound a Decoction made of *French Barley*, Honey of *Roses*, and Red Sugar at first; afterwards I added more of deterging Medicines, as *Wormwood*, *Centaury* and the like: but these, because of their bitterness were soon left off.

Glandorp, fol. 139. in his Book named *Specul. Chirurgor.* *Another.*
Observ. 26. relates of a Young Man, who being wounded between the 6th and 7th Rib, out of which issued much blood, and a Pungetive pain followed in the same Side, Sarcoticks being hereto applyed, Matter was generated, the which at the 12th day was not discharged out of the Wound: The 14th, 15th and 16th dayes he made no water; the day following he made Urine with pain, in which was seen *Sanguinolent* Matter. Whence was conjectured, That Nature had found out a new way, Diureticks being given him, and an opening Dyet prescribed, this Matter past by the Urine to the 8th day, the which appearing no further, the Wound was Consolidated, and the Patient Cured.

Forestus, fol. 76. Obser. Chir. Obs. 16. writes of a Young *Another.*
Man of 16 years of age, who having a naked Knife in a Bagge held under his Coat, and not remembring it, wrestling with another Boy, wounded himself, by receiving a Fall from him, in his Breast; whence issued a
very

Potion.

very large Flux of Blood : Having drank this following
 Potion he began to amend ; R. fol. *Collutea* ʒ iij. infunde
 in aqu. *Plantagin. Ungul. Caballin. Semel. Ebulliendo, et forti*
expressioni adde Electuar. de Succ. Rosar. ʒ ij. Pulv. Rhu-
barb. Nuc. Moschat. Mum. an. ʒ ʒ. Mel. Rosar. Colat. ʒ ʒ.
misce, fiat Potio. After the taking of which, the Wound
 in a short time Consolidated. This Potion is very ad-
 mirable for the dissolving and expelling of concrete
 blood. If you desire to satisfie your self further hereof,
Franciscus Arcan will give you many other Histories of
 these Wounds and their Cure, in his Book *De Vulneribus*
Capit. fol. 71. 85. and so on: The which I commit you
 to, desiring not to fill up this Treatise of Wounds with
 too many Histories.

CHAP. LVI.

Of Wounds of the Diaphragma.

His by *Plato* is called *Διαφραγμα*, of a word which
 doth signifie to distinguish by some *Septum trans-*
versum. It is a Muscle serving for Respiration, and
 doth differ from all the Muscles of the Body in its excel-
 lency, site, figure, and action. It is seated in the Cavity
 of the Body, being o'rethwart and oblique ; it's Nervous
 in the midst, and that partly for the more security that
 it may perform its various motions without hurt ; and
 partly that the *Vena Cava*, and *Oesophagus* which do
 pass through it might not be streightned, and so the
 course of meat and blood hindred. It is united to two
 of the muscles of the *Abdomen*, the Oblique Ascendent,
 and Transverse ; Its figure is almost Circular. It hath
 Veins, Nerves and Arteries allowed it. It is of much use,
 for

for it ventilates the *Hypochondria*, helps forwards Expulsion, and doth distinguish the noble from the ignoble parts; and that which is observed by some, in single Combats of Gladiators, some have been seen to dye laughing, being wounded in this part, and seeing we have already shewn you how it is, a round and capacious Muscle, subtended to the inward side of the Ribs, tyed to them, being in the upper part fleshy, and in the lower part membranous and spermatique, receiving a Wound hereupon being the Instrument of breathing, it sends forth froathy blood, a thin spirit, the Spine mourns hereat, and the principal bowels are drawn upwards; if the Wound be large, running the part into Inflammation, the breathing is very dull, accompanied with pain through all the parts of the Shoulder, a great Cough succeeds with noise and pain, the spattle looks livid, a vomiting and spitting of froathy blood follows: And they which are thus troubled do eat with great difficulty: The neighbouring parts sharing of these evil excrementitious juices and humidities are attracted hereby, hence disturbing the whole frame of the Mind, hence follows *Delirium*; and for this very reason the Ancients called this part *Phrenes*: hereupon happening a violent Fever arising by the great consent of the Heart, Wounds here happening, if they penetrate not too far, are with great Care and Difficulty to be Cured, not hindring its motion. If it happen in the Nervous parts that a Wound falls hereon, here may you declare the Cure either hopeless or helpless; these are the general Signs and Presages which do attend these Wounds. If the fleshy part of the *Diaphragma*, as we have already offered, be wounded, it may be cured with care; and here are we first to stop the Flux of blood, and to prevent Inflammation by well regulating the whole Body, and to agglutinate the Wound with all convenient speed; yet not untill all Blood and Matter be discharged; hence breathing of a
Vein

Vein for Revulsion is proper. As touching Topicks, we may here use the same Medicines as are directed in Wounds of the *Thorax*, such as may stop a Flux of blood, prevent Inflammation, and agglutinate; the Orifice to be kept open by a Tent or a Silver Pipe, as is already directed; and the same Intentions and Medicines which are already prescribed.

And for further satisfaction, I will here present you with the Method how to Cure these, being directed by *Glandorp*, who is the Author of this following History.

History.

A Saylor receiving a Wound in the fleshy part of his *Diaphragma*, in the left part thereof, about the end of the 11th Rib of the *Thorax*, within few dayes he was perplexed with great pains of his head, and of the wounded side, neither could he breathe freely; its depth was search'd by the Probe, and it was conjectured that the Wound did penetrate; A Vein in the same Side was Breathed, and a convenient Dyet prescribed, and this following Unguent was prescribed for his Side; *R. Unguent. Pectoral. ʒ ss. Dialth. cum gum. Ol. Rosar. an. ʒ iij. Croc. ʒ ss. misce*, into the Wound was put a long Tent armed with a Digestive, and over this was applyed *Empl. Diapalme*. Inwardly did he take this Vulnery Decoction; *R. Herb. Sanicul. Veronis. Pirol. an. P. iij. Consolid. Saracenn. Botrys Trichoman. an. pug. ij. Fl. Borag. Bugloss. an. P. j. Sem. anis. Fœnicul. an. ʒ ij. Cinamom. ʒ iij. Fuzub. n^o. 6. Dactyl. n^o. 4. Coquantur in aquâ Hordei q. s.* Of which he took 3 ounces with 2 scruples of Powder of Crabs eyes, the Body being bound, sometimes the Patient received a Suppository, sometimes he took a Lenient by his mouth. Matter being generated hereby, and the Wound being mundified, the Tents were shortened and armed with an Incarnative, and in a short time afterwards it was perfectly skinned up.

Unguent.

Decoction.

Another.

The Second is of a Wound which happened in the membranous part of the *Diaphragma*, but this brought Death

Death with it. A Souldier thrusting his Rapier a little under the *Xyphoidal Cartilage*, hence did arise Pain, and a great Flux of blood, with *Syncope*, and difficulty of breathing, with pains in his lower Belly about the *Pubes*, the parts much tumifying above the Navel, and about the *Thorax*; his Speech failed, and in this *Syncope* he dyed. The Body being opened, the Orifice of the Stomach, and its left part, and part of the *Duodenum*, and part of the *Colon* were found wounded to the *Thorax*; and the lower Belly, especially about the *Pubes*, did abound with grumous blood.

Ambrose Parrey, fol. 230. writes of a Captain, who Another. being wounded by a Bullet, passing by the ends of the *Sternon* near the *Xyphoidal Cartilage*, entring through the fleshy part of the *Diaphragma*, and through the *Interstitium* which lyes between the 5th and 6th Ribs, the Wound being Cicatrized outwards, yet there remained a weaknes of the Stomach, and a pain of the Guts, much like the Collick pain; and Eight moneths after the pain grew very violent, and within a while after he dyes: The Body being open'd by *Guilleman*, the Collick Gut was seen much distended with Wind; and that this hence did make its passage into the *Thorax* by the Wound of the *Diaphragma*, and yet the Wound scarce equalled the bigness of a Mans little Finger.

Hollerius Com. ad Aphorism. 16. lib. 6. pronounceth, The Another. *Septum Transversum* or Midriff being wounded in its Membranous Part, may not be cured, but in its fleshy Part it is cured with ease.

Alexander Benedictus remembers a certain Souldier, who being here wounded, was perfectly recovered.

And *Hollerius* writes, That he observed in a Man which was hanged, and was afterwards dissected in the Physick-Schools, that he had had a Wound in the fleshy Part of the *Diaphragma* Cicatrized.

CHAP. LVII.

Of the Lungs Wounded.

THese being the Instruments both of Voice and Breathing, are by the *Greeks* called *Pneumones*, upon reception of the Air, which they call *Pneuma*. And although these in most Creatures do hang loose, that they may move more freely, yet by the mediation of the Vessels of the Weazon, they are hung to the Neck, and tyed forwards to the Brest-Bone, and backwards to the Spine. And Nature taking care to maintain this Motion, she hath united them to the *Pleura*, that so by this connexion they might follow the Dilatation of the Chest, though it were perforated. They adhere to the Heart by the *Pulmoniack Vein*, or *Arteria Venosa*, and the *Vena Arteriosa*. Their Figure they gain according to the proportion of the Parts of the Chest, being both gibbous and swelling. They are divided by a *Mediastinum* into a right and left, that one Part being hurt, the other might work for both. Their Substance is loose, spongy and rare, made as it were of frothy Blood. They have allowed them a Membrane bred out of the *Pleura*. They have 3 Vessels deseminated through them; it receives 2 from the Heart, and these according to the opinion of some, are to be moved according to the motion of the Lungs, others according to the Heart. Their use is to aire the Heart in its dilatation, moderately cooling and tempering the heat of the Heart, for want of which the natural heat growes weak. These being framed for fanning the Heart, upon being wounded they occasion a difficulty of Breathing; the Blood which here comes forth is spumous or frothy. Sometimes there is perceived a noise or murmuration, the Neck of the Patient

Patient is convell'd, the Face inflamed, and then afterwards grows white, and many Changes in a small time act their Parts here. If the Lungs be inwardly wounded, the Tongue hath a change in its colour, they breathe short, and cough frequently, the Wound small, but affording much Matter, they live a good while, but pine away into a Consumption or Myasme; for the incised Lungs do beget ill Tempers and Inflammations, the which having once obtained, they leave small hopes of Agglutination; for upon expiration or inspiration somewhat of Air is received, by which the hurt Parts are offended, and at best, if Medicines might be allowed a fair reception into the Lungs, yet they must be moved by inspiration and respiration, and lacerated by Coughs. And where the Vessels are wounded which are lodged herein, or the Substance of the Lungs wounded, these are generally accounted lethal for several Reasons, they being in continual motion, moist, and subject to Inflammation, no Medicines easily reaching them, a large Flux of Blood attending these Wounds, and a great part of this Blood must necessarily fall into the *Thorax*, the which by its weight falling upon the *Diaphragma*, doth cause shortness of Breath; and after all, the Heart must consequently share with them in their mischiefs, the Lungs having their Vessels from thence, yet dangerous Wounds here, have been cured; as we shall afterward shew by example. But to proceed:

Wounds of the Lungs are known by their proper Symptoms. Evacuations being premised, breathing of a Vein is here requisite, and Cupping glasses and Ligatures for revulsion of Humours. As to the superfluities of the Lungs, these are to be carried off by Purgation, good Diet, and Medicines. And as to Topicks, whether either inwardly administred, or outwardly applied, they ought to be of a drying quality, and of that agglutinative faculty, as may both act its own Part, and

Of Wounds in Particular.

yet not prove mordacious. And here may we observe, That all Metals or Medicines having a saline quality in them, are not to be used here, these being not to be ruled and governed according to the native heat of the Part ; such as are *Verdegrease, Burnt Brass, Lead, Cadmia, Ceruss, Litharge, Chalcit. Pompholix*, and the like. But these following may safely inwardly be taken, as *Sacc. Hypocyst. Balauft. Malicor. Mastich. Gallar. Acac. Terr. Lemn. Bol. armen. Gum. Arabic. Tragag. Centaur. majus*, and the like ; these or any of them to be boyled in restraining wine. And here by *Hippocrates* we are advised, That in these Wounds, and Wounds of the *Thorax*, we order no Medicine without Honey in it ; for this makes its way through, cleanses the Brest, facilitates the Spattle, and brings no hurt to the affected Parts. *Troch. Diacod. Tabulat. Rosatum*, and the like, are very good in these cases.

Potion.

Or this admirable Potion : *R. Caryophylat. Rad. Arthemef. Pimpinell. Camom. Pentaphyll. violar. Caul. Rub. Consolid. major. Cimar. Rub. Centaur. minor. Pilosell. Fragrur. Consolid. minor. fol. Olivar. Verban. Tormentill. Millefol. an. M. j. Rub. Tinctur. Quant. Caterum coquantur omnia in vino Montan. lb 60. ad med. consumpt. colatura adde Mel. lbij.* of which let the Patient drink morning and night.

Troch.

Trochiscus for the same : *R. Sem. Caul. Rub. Sem. Cannab. Tanacet. Rub. Tinctur. Consolid. major. an. part. equal. pulverisentur & in vino odorifero & Sacchar. albissim. q s. fiant Trochisci.* Of which let the Patient take *ʒj.* or *ij.* morning and evening, which are very beneficial in these cases. Outwardly may be applied this Unguent : *R. Minij. ʒxxiv. Pic. naval. ʒiv. Ob. Rosar. ʒxxx. misce & coquantur ad Unguenti formam, tunc adde Terebinth. venet. ʒij. misce, fiat Unguentum.* In these Wounds also these are

Unguent.

very proper : *R. Caryophylat. Sanicul. Pimpinell. Rub. Pilosell. Tormentill. Consolid. utriusq; Centaur. an. M. ʒ. Coquantur in vino & agu. Plantag. simul mixt. & colatura adde Syr. Myrtin. or Syr. de Ros. succ.* And this way of

Cure

Cure is to be used until all Symptoms disappear, and the *Thorax* well mundified, and to proceed according to Art gently, for abstergeing, consolidating, and cicatriceing the Wound.

Mattheas Glandorp. fol. 130. Obs. 24. hath this Observation of a noble Souldier of 27 years old, being of a sanguine Complexion, and a strong habit of Body, who received a Wound between the 6th and 7th Rib of his *Thorax*, in the left side thereof, hence issued much spumous Blood, with Wind and Air; from hence did arise also a Fever and great pain. The Lungs being hurt, and in respect of the *Pleura* being wounded, he being of a Plethorick Constitution, had the median Vein opened in the same side, and 3 hours after was injected this following Clyster: *R. Rad. alth. ʒj. Mercurial. Violar. Malvar. an. M. j. Botryf. Pulmonar. Farfar. an. pug. iij Sem. Lin. Fanugrac. an. ʒʒ. Anis. Fœnicul. an. ʒiij. fl. Cham. Melilot. an. pug. ij. coquantur in aqu. commun. q. s. ut colaturam redeat; ad ʒix. his adde Eleët. Lenitivum. ʒj. Diaphanic. ʒʒ. Sacchar. ʒx. Ol. Rosar. Violar. an. ʒj ʒ. misce.* The 2d day did arise a great Cough, but without any spitting of Matter, with pain of the Side, for which was prescribed this Liniment: *R. Unguent. Resumpt. ʒʒ. Di- Liniment. alth. Pectoral. Ol. Amygdal. dulc. an. ʒij. Croc. ʒʒ. misce:* With which was anointed the whole *Thorax*. For his Cough was ordered *Troch. Bechic.* And for the wounded part of the Lungs was directed this *Lohoc*: *R. Lohoc. Lohoc. Pulmon. Vulp. san. & expert. an. ʒvj. Syr. de Farfar. de Hyssop. Rosar. siccar. an. ʒj. Pulv. fol. Hyssop. ʒj ʒ. fl. Sulphur. bene expurg. ʒiij. Troch. de spod. pulv. ʒʒ. misce, detur cum Baculo Liquirit.* of which he took several times in a day. For his Drink he took Barley-water, and sometimes 4 ounces of this vulnerary Potion: *R. Hord. A vulnerary Decoction. mundat. M. j. bulliat in aqu. ad Crepituram, tunc adde Farfar. Scabios. Pulmonar. maculose an. pug. iij. Sem. Anis. Fœnicul. an. ʒj ʒ. Cinam. ʒiij. Injub. n°. vj. Uvar. passar. enucleat.*

Of Wounds in Particular.

enucleat. in vino ablus. ℥℞. Liquirit. pro dulcorat. q. s. & serva ad usum. The Wound being narrow was dilated with a crooked Incision-Knife the 4th day, where was seen part of the Lungs hurt ; for the which was ordered this Powder : *℞. Pulv. Rad. Tormentill. Bistort. Pimpinell. an. ʒj. Sang. Dracon. ʒij. Bol. armen. ʒj ℞. Troch. de Carab. ʒj. fiat omnium pulvis subtilissimus*, which is to be sprinkled into the Wound. In the interim a bloody Matter began to flow forth, and the 19th day was prescribed this Lenient : *℞. Mann. Elect. ʒj. Diaphanic. ʒ℞. Syr. ex Infus. Rosar. ʒvj. Decoct. pectoral. q. s. fiat Potio.* The pain of the Side began in a short time to abate, the Efflux of the Matter stopped, the Cough abated, the Wound consolidated, and the Patient perfectly recovered.

Potio purgans.

Another.

Gemma lib. 1. Cosmocrit. Cap. 6. writes, That he saw the Fibres of the Lungs ablated both by Abscesses and Wounds, and yet the Patients lived.

And *Falloppius* writes, That he hath seen Inflations of the Lungs cured, and others to have dyed of the same : Wherefore the Lungs, as he saith, have their equal fates, as he writes *de Vulnerib. cap. 12.*

Many other good Authors have Rare Histories of Wounds here happening, the which I must pretermitt, as you may read in *Horstius lib. 3. Observ. De Morb. Pector. Observ. 11. Arcæus, lib. 2. cap. 1. Gulielmus Fabricius, Centur. 3. Obs. 36.* And *Johannes Schenkius* in his Book *de Observat. lib. 2. de Vulnerib. Pulmonum.* To which I recommend the Ingenious Reader. Next come we to Wounds of the Heart. Beginning with those which may happen in its *Pericardium.*

CHAP. LVIII.

Of Wounds of the Pericardium.

I Shall here also continue my former Custome, in giving you a short Survey of this Membrane, and its Uses, and then fall to its Wounds and Curative Method. It is a Membrane enwrapping the Heart swimming in it, and defending it from Injuries, so far distant from it as its pulsifying actions do require: It ariseth at the basis of the Heart, from the common disruptions of the *Pleura*, outwardly covering the Vessels of the Heart. *Riolanus* will have it a double Membrane; it outwardly adheres to the *Mediastinum*, in the lower part to the Center of the *Diaphragma*; it hath small Arteries given it for its nutrition, small branches of Nerves it sends forth to the Axillaries, and doth receive small Nerves from the left recurrent, and the 6th pair passing towards the Heart. It contains in it a liquor, the which doth keep the Heart moist, making its motion more facile, and prohibiting its dryness. It hath been observed by Practitioners, That this part being wounded, the liquor hath passed out; but the Wound being Cicatrized, the Patients have been recovered, and this hath renewed its growth again. This Pannicle thus covering the Heart, by some being called *Capsula Cordis*, being alone hurt is not very dangerous, being by *Galen* reckoned as an ignoble part; and hence he produceth a Story of *Marulus* the Son of *Mimographus*, who although his Heart did lye bare and uncovered, and the *Pericardium* corrupted, yet he recovered. This Membrane is so much softer than a Bone, as it is softer than the Lungs, and being as the Hearts *Marsupium*, it being wounded,
it

it loseth its store of *Serum*, whereby the Heart is kept moyst; hence follows sometimes *Syncope*, Fever, and *Cardialgia*, or Palpitation of the Heart. Wounds happening here are to be drest as you do those of the *Diaphragma* and other parts of the *Thorax*; and therefore I shall not insist hereon, but give further satisfaction as touching some Historical Observations hereof.

History.

And the first is of *Benivenius*, *Cap. 42. de Abditis*, who writes in cutting off an Abscess which grew upon the 7th *Vertebre*, the which had eroded the inward Membrane by its Matter, a little part of the Heart lay bare to sight, yet this Man by great Care and Diligence being used, was Cured hereof and recovered.

Another.

And *Cardanus*, *Comment. ad Aphor. 18. lib. 6. Aphorism. Hipp.* writes, That in *Antonius Algate* he saw part of the *Pericardium* ablated, and the Man cured; but somewhat of suspicion remained, for he lived not many years: And hence indeed *Petrus Salius de Curat. Morborum pag. 256. cap. 7.* writes, That these Affects of the *Pericardium* do generally bring a Consumption in the end, and hereupon happening a Heſtick Fever, to which oft-times a *Syncope* is connexed, the Patients die hereof.

CHAP.

CHAP. LIX.

Of Wounds of the Heart.

WE arrive now at the Prince of the middle Region, the great Master of life, and the Fountain of Arterial blood. And as the Soul of man is by it self individual and simple, the which *Hip.* calls *πνεῦμα natura inaspektabilis*, although it be individual in the whole, yet it is said to be manifold in respect of its variety of faculties, and dissimilar structure of Organs. Of the upper we have already discoursed, we come now to the second and middle, where we may see the Heart as *Plato* calls it the seat τὸ θυμικόν, because ἀνδραγαθία, by Physicians it is said to be the house of the vital faculty, or ἀρχὴ τῆς ζωῆς καὶ τῆς ζῆς, the principle of life, and first author of pulsation, which flourishing all parts do exhilarate, this languishing they pine away, and this perishing they decay. The Philosopher writes that this contains in it the artificial fire of *Zeno*, herein being contained the divine and celestial heat, the which former times feigned, fetcht its heat from Heaven, hereby giving life to man. It's a Bowel carries in it much dignity, for it is not to be long corrupted with injuries, neither does it spin out its grievous punishments of life, for being once hurt it brings present death. It's called by the *Greeks* καρδιά, ἀνδραγαθία, καὶ τὸ καρδιακόν, which is *Vibrare*. Its figure is *Pyramidal*. It's seated in the middle of the *Thorax*, circumscribed in its forepart with the *Sternum*, in its backpart with the *vertebra* of the Back, in its upper with the *Clavicles*, in its lower with the *Diaphragma*, in its right and left sides with twelve ribs. In its Temper it is the hottest of the bowels. In its passive qualities

qualities more moist than the *cutis*. Its whole structure is framed of Flesh, Fat, Veins, Arteries and Nerves. Its Flesh is interwoven with three kind of *fibres*, right *fibres* from its *basis* to the end of its sharp point; then oblique, which are obliquely produced according to its length, and lastly transverse for orbiculating the heart, passing through its ventricles. The heart draws blood by the help of the right in its *Diafole* through the *Vena cava* into the right, and Air by the Venous Artery into the left *Cavity*. It enjoys its attraction by the help of the *Oblique*, and by the transverse it contracts and straitens, and hereby expulsion is here made. Its Vein is called *capular* or *Coronaria*, encompassing the whole basis of the heart like a Crown. It hath oft times two coronary Arteries also running through its whole Arteries. Its small Nerves it hath from the sixth Conjugation. I shall not enlarge any further upon its Anatomical discourse, although I might here bring in its Ears, its Ventricles, Valves, and Divisions, but shall rather desire you to look into *Laurentius Bauline*, *Deemerbrooke* and the like, who are full enough in every one of these. We come now to the substance and body of the Heart it self as touching our discourse of Wounds, and here may we see, the heart being struck, much black and thick blood to issue thence, especially if its right ventricle or side be wounded; and hereupon we shall see the face soon grow pale, cold sweats attend the body, and a strange smell accompany the whole man. Just under the right or left breast the wound is made, the pulse doth much vary and act its changes, the extream parts grow cold, the mind troubled, and death follows. If the left ventricle of the heart be wounded, the blood is of a more rosie colour, more spirituous, spinning out. And in these direful cases we generally meet with *Syncope*, cold Sweats and Chills. The heart being so noble and generous a part cannot endure a divorce in it without death, for it's the beginning

ginning of life, and elaboratory of the vital Spirit; being in continual motion, full of blood, and this oftentimes emptying it self into the cavity of the *Thorax*, there threatening suffocation, as I have already said. If it happens in any of the Ventricks, this wound must necessarily be lethal, by reason of the great expence of blood which is made and lost. Another ill affect here may be the Air, the which passing into the wound does oftentimes occasion death. If the wound do happen in the substance of the heart, and do not reach any of its Ventricks, the Patient may live for two or three days but not much longer. The prince of life being corrupted, doth soon distribute and share of its hurts to all its subject parts, and these of necessity must contract by their Rivulets from the Fountain of its hurts and mischiefs, it being as the Radix or Ocean both of Veins and Arteries, it being as *Aristotle* writes the best of all bowels, distributing to, and not receiving from any part, giving life and motion unto others, and diffusing its proper virtues as it pleaseth it self, and exposing its griefs and sorrows to other parts according as it thinks fit. *Hip. Aphor.* 6. affirms that wounds of the heart are lethal, especially if they be large, and penetrate its ventricks. Superficial wounds here happening may be cured. But these wounds whatsoever are so rarely cured, that you shall scarce read of any one man here being wounded to have recovered, but in the space of two or three hours to have yielded up his last breath. For as *Fallopian* writes, should we either consider the excellency of the heart, or its substance, death must necessarily follow, its substance being hard and not to be agglutinated. And if we regard its perpetual Motion also and Temper, we may soon see it inflamed; and if to these we add the greatness of the wound, we may find it time lost in expecting ever to gain cure here. And for the proving of this I shall produce some worthy Historical Observations. *Galen lib. 5. Cap. 1.*

de loc. affect. pronounceth, that if any wound do reach the Ventricle of the Heart, and there follow a large flux of blood, the party must necessarily die. And that especially if the left Ventricle be wounded. Yet if the wound have only penetrated the substance of the heart, and not reached its Ventricles, these may live that day or the next, but seldom any longer, for inflammation hence arising it soon puts out the light of his life.

History.

Cyriacus Lucius de suis observat. writes that for resolving the Question, about the seats of the principal faculties, and their originations amongst Physicians, it was not of little weight to produce the History of one who being hurt in the left part of his *Thorax*, the wound penetrating the substance of the heart, and either Ventricle thereof, being made transversely, fell hereupon as it were void both of his senses and reason for almost the space of a whole hour, he soon dying of this wound. His body being opened, all the spectators might see and understand the shape of the Instrument which made the wound into his heart, and might very well judge of its form and fashion. And to conclude this discourse, *Ambrose Paré lib. 9. cap. 30.* writes that he saw a Noble man who fighting a Duel with another received a wound under the left breast, which penetrated the substance of the heart, its Fibres being transversely incised, and hereupon after walking a matter of two hundred paces fell down dead. The dead body being opened, the wound might easily be seen to pass into the substance of the heart, the bigness of a finger, hence was also seen a great and plentiful effusion of blood in the Diaphragma.

CHAP. LX.

Of Wounds of the Arteries and Veins,
and of the Vena Cava and Great Ar-
tery.

THE blood being purged from all its bitter and
 lutulent excrements, doth show it self more pure,
 red and sincere in this its large vessel, the which shall
 in this place offer it self. And this Vein by the Antients
 was called *κυστήρ ἢ μυστήριον*, that is large and hollow,
 this being the fountain of humane nature, and the flood-
 gate of our Microcosm, and the common mother of the
 rest, except the Umbilical and Port-vein: It is bred out
 of the Gibbous part of the Liver, it is seated according
 to the length of the back, and runs directly through
 both Venters, hereby conveying of its blood to all parts.
 It is divided by Anatomists into an upper and lower
 Trunk, the upper penetrating through the *Diaphragma*
 and ascending upwards does distribute many of its bran-
 ches into all the upper parts; the descending Trunk
 lesser than the former adheres to the Spine on the right
 side, and does disperse several of its branches through the
 Liver.

Of the Vena
Cava.

The Great Artery is exceeding large at the left ven-
 tricle of the Heart from whence it ariseth, and for this
 reason all Anatomists do allow the Heart the Origination
 of Arteries. And before this do fall out from the *Peri-*
cardium above the valves it doth afford, are sometimes
 two Coronary Arteries, the which like a Crown do en-
 compass the Basis of the Heart, and a little under the
 great Vein, or *Arteria venosa*, it ariseth upwards and
 penetrates

Of the Great
Artery.

penetrates the *Pericardium*, and is divided into two equal parts, the one called the ascendent, the other the descendent Trunk. This Trunk doth very fitly answer the body of a Tree, and doth incline to the 5th Spondyl of the *Thorax*, and somewhat declining towards the left giveth way unto the *Vena Cava*. From this Trunk are branches dispersed, which do accompany the ramifications of the Port and hollow Veins into the whole body. Thus have we given you a short survey of these two great Trunks by Anatomy.

Signs of the
Vena Cava
wounded.

If the hollow Vein be wounded, a Flux of black Blood succeeds, the wound happens in the right side, the Veins do speedily empty and flag, the face looks pale, and the extreme parts do grow cold, the faculties wax weak, and soon after these the Patient's life is taken from him.

Signs of the
Great Artery
wounded.

If the Great Arterie be wounded, arising from the left ventricle of the Heart, distributing its vital Spirit through the whole Man, and tempering his native heat by a *Systole* and *Diastole*, the flux of Blood appeareth florid, and the wound must be in the left side, the motion of the Arteries do vary and change, the extreme parts grow chilly, and a perturbation of mind doth cloud the animal faculties, a Fever follows and creates a preternatural heat in the parts, a Palpitation of the Heart follows, after which you may suddenly see the Heart it self yield. For wounds happening in either of these two must consequently procure death by reason of the quick and plentiful discharge both of Blood and Spirit, hence following an interception both of the faculties and functions both of Heart and Lungs.

CHAP. LXI.

Of Wounds of the Veins and Arteries.

WE come now to the general discourse of the Veins and Arteries, where we may see how they vary by Anatomy. A Vein is by the Greeks called *φλέψ*, and is *φλέψ* *αβυδα*, because a plenty of Blood doth abound in it. This is an Organick similar part, membranous, long, thin, hollow, containing Blood in it, and carrying the same to the Heart. It's said to be Organick in respect of its action or use, for conveying the Blood. It hath a membranous substance, moderately soft, the better for distension; it hath one proper coat, intertextured with a threefold kind of Fibres, the which is manifestly apparent in *varices*, the which when its transverse and oblique Fibres have been rent, the coat of the Vein seems loose, neither is it to be ever restored to its former natural state. It's nourished with the Blood which passeth through it, it's nourished as are the Arteries. The Veins are inwardly furnished with valves for admitting the reception of the Blood, and making a free passage for its address to the Heart, and hindering its reflux from it. They take their material Origination from the seed, but whether they take their first Origination from the Liver by the *Vena Cava* and *Porta*, or from the Heart is yet much disputable.

What a Vein is, and how made.

An Artery by the Greeks is called *ἀρτηρία*, *αἵματι* *ἵσταται* because it being generally in motion, or *αἵματι* *ἵσταται* *ῥυθμῷ* because it keeps air or spirit in it. It's an Organick, similar, long, round, and hollow part, ordained for conveying the spirituous Blood. Organick in respect of its action or use, the Blood being herein contained, being much like the distillation:

What an Artery is, and how made.

distillation of Wine, the which being the oftner distilled doth yield a more pure and subtile spirit. Thus the Blood, the oftener it is dilated in the Heart, its spirituous particles are the better dissolved from its thick mass, and are the better attenuated. The substance of an Artery is membranous, so framed for its better dilatation and constriction. It consisteth of a double proper coat outward and inward. The outward whereof is soft and thin; endowed with many right, few oblique Fibres: the inward is more hard and thick. And it is very necessary that it should be so, especially about the Heart which doth receive the warm Blood falling from the Heart. This coat hath in it many transverse Fibres, few oblique and right, the better for constriction; for should the Arteries not be made firm by these transverse Fibres, by their great pulsations they would be dilated, and so remain. For this is the cause of Aneurism: This coat being rent with its Fibres, the Blood doth soon make its entry and passage into the first soft coat, the which by reason of its softness is soon extended, and hence doth arise a Tumour in the part. They are nourished with spirituous Blood which doth pass through them, in which because there are in it many saline particles, a good part of which comes to the coats, it maketh their substance both more firm and thick.

Cause of Aneurism.

Having thus given you a brief Anatomical discourse of these parts, we are next to look into their wounds, and here are we to enquire whether this Wound was given by a Sword, or Shaft, or occasioned by a fall upon a sharp Stone, or inwardly by some salt and corroding humour. All these are to be collected either from the Patient, or by their proper signs. That there is a breach of some vessel profusion of blood is certificate enough, herein comprehending the place by the glass of Anatomy, considering the largeness of the wound, and impetuosity of the Blood flowing. Now whether it flows from a Vein, or an Artery, may be collected from these signs.

As

As first, the Arterial Blood being both rosie and florid, also passeth out with leaping, spinning forth in its dilatation Secondly, this Blood is more thin and fluid than that of the Veins. And thirdly, as this is florid and rosie, so the venal blood is black and thick. Again, the Arterial Blood is more hot than the Venal, neither hath the Venal Blood such Spirit allowed it.

Because Blood is the treasure of life, if this flux be not immediately stopt, it brings a dissolution of the whole man. For in these great fluxes we generally see Convulsion, *syncope*, *Singultus* and the like, as continual attendants hereupon. The cure of an Artery cut is much more difficult than that of a Vein, because the Arterial Blood is more fluxile, and its body more hard and always in motion. An Artery cut overthwart, is sooner healed than that which is incised longwise.

Prefages.

As to the Cure, we are advised by *Galen* to cause a speedy stop to this flux, and then to cure the wound. And this is to be done either by aversion or derivation, or making the matter more firm that it make no further address, by obstructing the mouths of the Vessels, either by joining the lips of the wound together, or by obturation of the Vessels by compressing them together with the fingers, and keeping them so compressed until the blood do become grumous. I have already in the beginning of my discourse shown eight several ways of stanching of blood, and this may be done either by a certain regulation of the whole body, or well ordering of the affected part. The Diet here ought to be thin, cold and of substance thickning, somewhat restraining, so as it may both cool and thicken the blood; and for this use Lentils, Rice, Jujubes, Quinces, Medlers, Pomegranates, Prunes and the like are proper here. Let his drink be either cold water or chalybeated water or Posca, Barley-water, of Julip of Roses, Plantain-water, Spawn-water or the like. The part affected ought also to be cool-

Cure.

ed, and hence repereussives are proper whereby to repel the blood from the affected part. Hereupon both upon the part and its origination is to be affused Posca, Black-wine, Juice of Nightshade, Lettice, Plantain and the like. The flux is to be averted either by revulsion or derivation; for revulsion Phlebotomy is to be instituted, if the flux be large, and the spirits will allow it. For this use also Cupping-glasses either without or with scarrification are proper engines here, as also Ligatures, Frictions, Unctions, Fomentations and the like, all which are to be applied to the contrary part. Now come we to the Vessel it self which is wounded, and here are we to observe, that the lips of the Vessels are to be shut up; and here if an Artery be dissected, we first apply our thumb and finger upon the Vessel for its compression, after which the wound is to be washed with Posca for the expurgation of the concremented blood. The blood being cleansed and the wound dried up, we are to sprinkle some restrictive powders into it, over these to apply a convenient liniment upon the present removal of the finger, after the application of which, to apply the finger upon it again. And when you take off your dressings, you are to take them singly off, with a due observation of keeping your finger on untill you have wholly removed all your dressings. The wound being expleated, its superficies is to be sprinkled with restrictive powder, then covered over with a rowler, which was dipt in Sharp-Wine and oyl of Roses. And here are we to observe that we do make three or four ligations upon the wound, and so to mount your ligatures upwards towards the origination of the Vessels, so as the blood may be retracted from the affected part. Then remove your ligature the third day, changing also your dressings, in which time you may safely proceed in this operation. The Chirurgion ought to be well skilled in Anatomy, for Nature hath planted and mixed Nerves with Arteries as cold bodies that
by.

by their heat they may be cherished : for if in these cases the Chirurgeon do not separate the Nerve from the Artery by a small hook, he will bind up both parts, and if the Nerve be compressed, it speedily is deprived both of its sense and motion, and hence doth follow a stupidity of the whole member. In these cases therefore the Nerve is to be separated from the Artery, and then the Artery to be bound up. And in our ligations we are to take care that they be not made too strict. *Fallopius* fol. 211. writes of an infirm Mechanick who received a wound in his *Vena Poplitis*, in which wound it behoved the part to be rowled up without which he must necessarily have perished ; the wound was rowled up although the Artery was cut, yet within the space of a year after the man perceived a pulse in the Artery of the *Malleolus*. For which reason he thinks in such a process of time that the Orifices of the Arteries do meet together again and conjugate ; but this is not always approved of, neither doth use of ligatures always appear here proper. For in some cases the Artery is to be transversely incised : for this is the proper nature of the Vessel upon such an incision, to make towards its Original, and to shrowd it self under the Muscles, and with ease join their Orifices with them. And *Gal. lib. 5. Meth.* teacheth us this way of dissection of an Artery, as first, to lift it up with a hook, then to separate it from the Vein and Nerve, and then to divide it ; the which being done, the Artery is to be tied up or twisted by the hook, for hereby the Orifices of the Vessels are compleatly obstructed. But if the wound be so deep and do penetrate so far as that we cannot come at it, in these cases Ustion is most proper, for hereby the flux of blood is stopt by cringing the mouth of the Vessel and at its ends procuring an Eschar or crust ; but this very seldom doth happen. And here I do advise with all imaginable caution that you take care of the Vessel that it be kept from being burnt up, because

this action is both painful, cruel and difficult, and we proceeding here as it were hood-winkt; besides all which if this crust or eschar should fall off, it would subject the part to a new flux, the which is seldom conquered by the best of medicines. In these desperate cases these things are to be observed, That you first make this with a red hot Iron, taking care that the concreted blood be not cauterized in the wound, but this first to be expurged with Posca. A second caution is, That we make not too much adustion, but only so far as to cause a corrugation of the vessel, by the first or second application of the actual Cautery. And sometimes a potential as well as an actual Cautery may here properly be used, and for this some do prescribe Soot as the best of medicines both for procuring an eschar and also for suppression of the blood. But this is not to be used in all places, as the face or eyes or the like, for it always doth leave its mark of blackness. We in these cases do generally use *Calcanthum*, or calcined Vitriol. Some do use oyl of Vitriol or Sulphur, others for the same effect do prescribe *Troch. de Minio*, but it is a mischievous medicine in these cases, for that besides its exciting of pain, it doth also encrease the same. Having by these or the like medicines granted that the flux of blood is stopt, our next intention is the agglutinating of the wound. And here because there is an eschar to be removed, emollient and digesting medicines are here to be applied, as *Unguent. Dialth. Balsicon*, fresh butter, *Axungia Porcina*, or the like. Then is the wound if deep to be filled up with flesh by Sarcoticks, and skinned by Epouloticks. And here by the way according to *Galens* advice *lib. 5. Method.* we are to apply to wounded Arteries so much the more drying medicines than to Veins, by how much they are of drier bodies: wherefore a Vein wounded without loss of substance is to be cured as you do wounds of the flesh. And *Gal. lib. 5. Meth. cap. 7.* relates that Arteries may also be

be consolidated, for he saith that he hath seen them agglutinated in Women and Children, and to be every way covered with flesh, and that both in the Forehead, Anles, and Arms; and brings in this Story of a young Chirurgeon not much skilled in his art, who was about by a Physicians order to breath a Vein in the Arm, but cut the Artery instead of the Vein; the blood which issued out was yellowish, thin, and full of spirit, coming out with leaping. He being called to this Patient with some other Physicians, a Plaster being made ready for the suppression of the blood he joyned the Artery, and applied over it the Medicine, and bound a soft Sponge over all; unarowling of the dressings the fourth day the incised Artery was apparently seen to be conglutinated, after which were applied the same Medicines again, and so for some days to be continued, and within a small while his Artery was perfectly cured.

Dodonæus Medicin. Observ. Cap. 49. writes of a *Spaniard* who falling upon his face, cut an Artery, and the *Cutis* being rent herewith the blood issued out very plentifully; many Medicines being tried in vain, his friends desired him to stop this Flux if possible. Coming to him, and viewing the wound, he could find no better Medicine than an actual Cautey to perform this, hence with all diligence he cauterized the incised Artery, and presently suppressed the flux of blood, the which being stopt, the remainder of the cure was performed with ease, and the Patient speedily recovered his pristine health.

History of
Arteries
wounded.

Forestus lib. 6. Observ. Chirurg. Obs. 35. writes of a young man in *Delph* whose Artery of his thigh being wounded, was not to be conquered by any Medicines, or its flux of blood intercepted by astringents; yet by the benefit of the actual Cautey he was presently freed from death. *Benivenius cap. 49. de Abditis* hath another Story hereof after the same manner of one whose Artery was cut, and not to be cured without an actual Cautey.

Another.

Cautery. *Fabritius Hildan. obs.* 18. writes of a man of 40. years of age, who being of a cholerick and angry disposition, and being wounded in the head, the left soporal Branch of the Artery which lies under the Temporal Muscle was incised; the flux being stopt by the application of his restrictive Powder at first, he brought the wound to digestion the Fifth day after his hurt received; he that gave the wound unhappily comes unawares into his Chamber, the wounded man not knowing of his coming, and being troubled and vexed at the sight of him, upon this passion the Artery opened and divided it self again, hence issued such a flux of Blood that it could scarce be stopped, yet this man at last grew well, and recovered. Hereby may we see what influence Anger hath over us, it being the most terrible of all passions, and the most fertile mother of infinite evils.

Of Veins
wounded.

Dodonæus fol. 267. *med. obs.* writes that in his time a Barber endeavoring to pluck out the hair from a mans nostrils, did unhappily cut the small Vein which is within them planted, hence followed such a flux of blood that many Physicians could not find any way to stop it, but the poor man miserably ended his life.

Thus have I run through all the parts of the middle Venter, and the chief parts which are most subject to be wounded, we proceed to the third and last.

CHAP. LXII.

Of Wounds of the Abdomen.

HAVING in my former discourses shown the upper and middle Regions, wherein we have dismantled every of the parts, we come now to Natures workhouse, wherein we may see her nutritive Engines by which she doth sustain the whole family. This being as the Kitchen of the Body, guarded with an outward armour of Muscles, then wrapt about with a fine spermatick Peritoneum, inwardly may we first view its fatty Kell framed with curled veins, and crisped fat, being as a warm rugg keeping warm the Stomach and Guts. Next these the admirable series of Intestines, in whose midst is planted the Mesentery staying them in their proper places, and conveighing to them the meseraick Veins, by which the aliment is convey'd unto the gate of the Liver. After this appears a Pancreas, the Liver, bladder of Gall, Spleen, Ventricle, Bladder, Ureters, Kidneys and the like. But of each of these in their order.

We begin with wounds of the Abdomen, and here we may meet with two sorts hereof, the one being simple and not penetrating, the other being more compound and penetrating. And before we concern our selves with the cure hereof, let us see the signs by which we may know these. And these again may be seen to penetrate with, or without the excision of any part, with or without hurt of the same. A penetrating wound we may find either by the probe or searching candle; for if a great way in, it's a sign of a penetrating wound, observing here also that the wound be made directly. For if the wound be made obliquely, you may put your Probe

Signs of a penetrating wound.

or.

Prefaces.

or Candle a great way in between the Muscles, and the wound notwithstanding not penetrate. Again if you make any injection of Wine and do inject it into the wound well warmed, if the wound penetrateth, it will remain and lodge in the Cavity. If not, it will make its speedy exit. If the Omentum or Intestines come out of the wound, these are evident testimonies of its penetration. As for such wounds as do not penetrate they are void of danger unless they be very large; and that is worse which is made in the middle part than in the sides, for the middle part is more nervous, and more difficult to stitch up; besides the guts do more easily pass out here than at the sides and so do hinder agglutination. And as *Celsus* saith, all penetrating wounds are accounted dangerous, because they are most commonly large and always deep, because the air which passeth into the wound does hurt the guts, and likewise also because the matter oftentimes does fall into the Capacity thereof. And he further noteth, that as he cannot escape who is wounded in the body of the Brain, Stomach, in the Gate Vein of the Liver, or whose spinal marrow is smitten; so also may he not be said to be cured, to whom the middle of the Lungs, Jejunum, small Guts, Kidneys or Bladder are wounded. In these wounds these Intentions are required. If any part comes out, to repose this, then to stitch up the wound, to apply agglutinative Medicines, and to remove all evil Symptoms. We shall treat of the parts by themselves. And here by way of Caution as touching our future herein required, we are to consider how much of the part we are to take up to stitch with the Needle, for if here we take up but a small part, the thread will cut it through, if too great a part, we shall occasion pain. Secondly, that we make convenient spaces between our stitches for a better exition of the matter. And then that we consider the depth of placing our Needles, and that our thread or Silk be of a good size.

size. Here also are we to note that the stitches are not to be cut off the fourth day, but to remain on until the ninth or longer, for wounds here are not suddenly consolidated. Over the stitches may be applied some of the agglutinative Medicines which I have already proposed, being made of Turpentine, Frankincense, Bol-armenick, Dragons-blood, or the like. If to this wound inflammation be adjoined, the wound not being neglected, the inflammation is to be minded, the which does sufficiently declare it self by its colour, touch, and sense of the affected part. And this is to be speedily abated and all other symptoms, as pain, intemperiety, and the like. To conclude this.

A very worthy Gentleman of our country falling down upon his side, the point of his Knife being put into his pocket upwards, by the fall struck into his lower parts and left side of his body, the which being examined it was found both very large and deep, whence issued a great quantity of blood. The bloody flux being stopt, and the concreet blood cleansed, the wound was sticht up with convenient spaces for the discharge of the matter. The matter being digested, the wound was healed, and he perfectly recovered, and was with me when I writ this. *History.*

CHAP. LXII.

*Of the Abdomen wounded with Exition
of the Intestines or Omentum.*

IF the case be, that the Intestines or Omentum do come out of the wound, these with all speed are to be restored. But if they have been out long, and the orifice of the wound be small, and by reason of the cold air these parts are filled with flatulosity, so as that they cannot be reduced, you are in this case according to *Celsus's* advice first to make an incarnative fomentation to disperse this wind, and then to try the reposition of the parts. The fomentation may be made of Camomile, Spicknard, Squinanth, Melilot, Dill, Pennyroyal, Wormwood, Mints, Balm, Lavender, and all the carminative seeds and berries boyled in Wine, in which is to be dipt a sponge, and so to apply it warm to the affected part. *Rhazes* for this purpose doth apply the Lungs of Animals hot hereto. The flations being thus dissipated, the Intestines are to be reduced with your fingers. If the *Omentum* do come forth at the wound, and by reason of cold it hath got a strange colour, and purchased an unnatural hardness in it, so far as the part is corrupt, this is to be cut away: but if it carries its native colour, and no change do appear in it, this are we to repose into its proper place; and if the wound be so small as we cannot get it in with our fingers, we are advised by a searching candle to repose it, this being dipt in some Traumatick decoction. Some there are who for this use do use a Golden wire, and hereby do cut away all the putrefied part. The next intention after this is to stitch the wound.

wound up by *Gastroraphia*. By *Aquapendens* there are set down 3 sorts of these stitches: the first performed by thrusting the needle through the skin and the Muscles, even to the *Peritonæum* not touching it; then from within outwards the *Peritonæum* is to be thrust through and the Muscles of the opposite side by the needle; then within the distance of an inch the needle is to be thrust through the Muscles of the same side, leaving the *Peritonæum*: and thus are you to proceed until you have sticht up the wound. The second is done by stitching the Muscles together and the sides of the *Peritonæum* together. The third differeth not from the stitch which is used in other parts of the body. These being done, the next Intention is to apply agglutinative emplasters or powders, of which I have already directed sufficiently; over which may be applied *Empl. Diapalma, de Betonica, Barbarum Stipticum*, or the like. *Galen* proposeth the fourth scope is to prevent the hurting of any noble parts; and this may be occasioned either by pain, or a collection of matter or blood in the cavity of the *Abdomen*. *Gal.* for the first, 6. *Meth. cap. 4.* adviseth to embrocate all the parts from the Arm-pits to the Inguens with Olive-oyl warmed; or oyl of Camomile, *Dialthæa* or *Roses* for this use is better. And asto the second accident, matter and blood may well fall from the lips of the wound into the *Abdomen*, and may not only offend the Guts but also all the other contained parts, for hereby sometimes a Tumour is caused, sometimes a Dropsie generated. And these signs do certifie their being inwardly contained; as first, the weight shews the same with pain and tension of the part; 2. if upon depression of the belly you find the matter make its passage from one part to another: hence are we by *Galen* directed to order such medicines as may rarifie the parts, both dissipate and draw forth the matter.

To conclude this, I shall present you with some remarkable

History.

able histories worthy our observation as touching this Chapter. *Albucasis lib. 2. cap. 58. Meth. Med.* writes of a wound happening in the belly which was made by a small Knife, it was the breadth of a hand lacerated, and the Intestines came out the breadth of two hands, the Intestines were restored, and the wound in 24. hours consolidated, and the wound in the space of 15. days was recovered, upon which wound was put old wooll, washing it twice a day with *Aqua Mellis* until it was healed.

Another.

Another shall be of the *Omentum*, the which falling out of a wound, the *Abdomen* being cut and wounded, the Patient recovered, and this is of *Galen de usu part. lib. 4. cap. 9.* That the *Omentum* was framed for warmth sake is sufficiently evident, although in those who have been wounded in their *Abdomen*, in which wounds this hath fallen out, being hereby made livid, this compells the Chirurgeon to cut off the hurt part. All such therefore do find their stomachs cold, and do not well digest their victuals, and do furnish themselves with many outward coverings, especially when a great part of this is taken away, as it happened once to a Fencer where we were forced to cut it almost all quite off, yet this man recovered, yet he the remainder of his life was ever hurt by any outward cold, and was not able to endure a naked belly, but ever did wear a quilt well thickned with Cotton over his belly.

CHAP. LXIII.

Of Wounds of the Omentum.

THE Kell by the Greeks is called *επίπλουν* or *επίπλιν* to swim, in Latine *Omentum*, this swimming upon the bottom of the Stomach and the uppermost Guts. The *Arabians* do call it *Zirbus*, being as the mop of the belly sweeping up its superfluities. It is a large membrane, situated upon the bottom of the Stomach, and downwards over the Guts unto the Navel. It's fastned to the Stomach, Spleen, and Colon. Its form is like a purse-net or Faulknors-bag, consisting of a double membrane knit together at the bottom. Its membranes are two lying one upon the top of another. It hath many Veins arising from the Port-vein. It hath its Arteries from the Celiac and Mesenterical branches. The fat is very plentiful about these Vessels. Its uses are to keep the guts moist, and it warms and comforts the Stomach, and in time of Famine it supplies a kind of subsidiary nourishment to the natural heat. Having given you the abstract of the Anatomy of the Kell, whereas I have already shown in some measure how it is to be dealt with if it comes out the *Abdomen* being wounded; here shall we briefly shew how to cure any part thereof which is either cut, or hanging a long while out of the wound, easily causing it to putrify and gangrenate. If any part therefore of the *Omentum* comes out, and by reason of cold or the air is too much cooled, which you may discern by its unnatural hardness, or if it be black or livid, then is this to be bound up near to the warm and sound part, and the corrupt part must be cut away, letting the thread hang out of the wound until the corrupt part doth separate

parate from the whole, then draw the thread wholly out of the wound. If the *Omentum* be nothing altered in its colour, let it be restored and reduced into its proper place, and be ordered as I have already directed in the foregoing Chapter. In these kind of wounds because the fleshy parts are generally hurt, digestives, mundificatives, incarnatives and cicatrizing medicines are required. All which I will show you in this ensuing discourse. Of a wound of the *Omentum* not being well handled whence did arise a gangrene, *Glandorp* hath it in *Obs. 29. lib. spec. Chirurg.* the which I shall set down here for thy better management if occasion doth or may require. The History is of a Nobleman who challenged a Scholar into the field to fight, the which being met, the Scholar wounded the Nobleman a little under the Navel the length of 6 fingers, out of which came forth part of the *Omentum*, with some of the Guts, yet unhurt. The Chirurgion which was imployed neglects this wound of the *Omentum*, and doth repose the cold parts, and stitcheth up the wound, whence in the seventh day when the putrified matter could not obtain an evacuation, a Fever did hereupon arise, with frequent perturbations of the mind. *Glandorps* Father being consulted, seeing the wound so strictly sticht up, presently did cut them open, hence followed out at the wound a great plenty of matter; and having more diligently examined the wound, and cleansed it with Wooll or Lint, he sees the *Omentum* turning black, as you see in the beginning of a gangrene; the part of the *Omentum* was drawn forth, and tied in the upper part, and part thereof was taken off, which was the quantity of three transverse fingers, and having prescribed him a good order of diet especially in respect of his Fever which was very hot and afflicting, he had afterwards this Clyster administred. *R. fol. malv. alb. violar. an. M. i. scord. hyperic. an. M. ss. fl. Cham. Melilot. an. p. iij. sem. anis. fenicul.*

History.

Clyster.

fenicul. an. ʒiij. Lin. Fænugræc. an. ʒvi. Caricar. ping. ʒij. coquantur in q. s. aqu. font. ad ʒix. his adde Benedi. laxat. ʒvi. Ol. Amygdal. dulc. ʒiʒ. Ol. violar. ʒvi. Sacchar. rubr. colat. ʒi. misce. Afterwards was ordered this Cordial. & *Aqu. Theriacal. Cinamom. an. ʒʒ. Borag. bugloss. Cardu. an. ʒʒ. Rosar. ʒvj. Sacchar. Perlat. ʒij. Conf. Alkerm. ʒi. misce;* of which let him take a spoonful now and then. The Tents were armed with this Digestive, over which was applyed *Empl. Diapalma. & Terebinth. lot. in aqu. Veronic. ʒi. Ol. Rosar. Lumbricor. an. ʒiij. Cort. Ybur. Mastich. an. ʒʒ. Mel. Rosar. ʒʒ. vitell. Ov. n. j. misce.* The circumjacent parts were anointed with *Ol. Cham. Viol. Rosar. and Lumbricor.* and because pain much grieved the parts, over these were applied this Catapl. & *fol. violar. M. ʒ. Scord. pug. iij. summit. Absynth. Abrotan. Rosar. rubr. an. pug. ij. fl. Cham. Melilot. an. pug. j. farin. Hord. Fabar. an ʒiʒ. Lapinor. ʒi. cum Lac. vacc. q. s. fiat Cataplasma, sine addendo Ol. Rosar. ʒi. violar. ʒʒ. vitell. Ov. n. j. misce.* Hence was generated good and laudable matter. In the interim he complained of pain of his Stomach, for which in some mornings he took *Cassia* for loosening his belly, and for his weakness of the Stomach was this ordered. & *Conf. Rosar. rubr. ʒi. Absynth. Roman. ʒvi. spec. Diarrhod. Abbat. ʒii. Rad. Eaul. camp. cond. ʒʒ. Ol. Cinamom. gut. iij. misce.* By these means the inflammation, and a flux of humour to the affected part, and the fever with the other symptomes, did within few days vanish. To the wound were applied mundifiers, incarnatives and agglutinatives, with a fair cicatrice, that the man recovered to his pristine health.

Cordial.

Digestive.

Catapl.

CHAP. LXIV.

Of Wounds of the Guts.

THE Intestines are called by the Greeke *Ἰντερα*, in Latine *Intestina*, being placed in the inmost part of the body; these are wrapt up into many folds, they are knit together by the benefit of the Mesentery, they are long bodies, hollow but not of a like bore; they are continued with the Stomach at the *Pylorus*, but their substance is thinner than that of the Stomach, and they have almost innumerable Veins. The small Guts are in number three, *Duodenum*, *Jejunum*, *Ilion*, the which although they have almost one capacity, yet they are easily distinguished by their site, length, and by the Meseraick Veins. The great or thick Guts are of the same number, called *Cecum*, *Colon*, and *Rectum*, all differing in site, Figure, and Magnitude. You may find in all Authors of Anatomy their true insertion, site and length, we shall therefore pass to the three coats, one of which is common to them all, having its origination from the *Peritoneum*, this is made as a guard for their defence. They have also two proper coats, partly as *Galen* sheweth, that their expelling faculty might be strong, and partly also for security. They have all kinds of fibres, the inward being oblique that they might retain, the middle transverse more proper for expulsion, the right being in the small Guts fewer than in the great. They have their Vessels from the Port Vein, Arteries from the *Celiac* & *Mesenterical Branches*, they have Nerves from the sixth pair. The use of the small Guts is as the proper conveying instruments of nutriment, distributing the same, and for this reason hath Nature drawn the Guts out to a length, so as she may in each

each of them lodge a little quantity, fit to be sucked up by the Meseraicks. The use of the great Guts is to contain the excrements in them, with choler which is afforded them from the bladder of gall having a passage which enters the *Duodenum*.

We come now to the discourse of these being wounded, and here are we well to consider whether the small or great Guts be thus wounded. If the small be wounded, the Chyle is seen to pass through the Orifice, the Hipps do tumify and grow hard, or Choler is seen to come this way, especially if the *Duodenum* or *Jejunum* be wounded, sometimes meat and drink do pass through the wound. There's little hopes of cure if the *Jejunum* be wounded, because it is exanguial, and does receive a great Quantity of vessels, its coats being very thin and nervous: besides, the choler which descends from the bladder of gall on one side, and the pancreatick juice which passeth into these Guts on the other does much hinder Consolidation. And although these reasons are true, yet that these being wounded have been cured, Example and History makes good; and therefore in these cases by *Hippocrates* order we are not to leave the Patient in misery without help. Wounds of the great Guts are more fleshy, and therefore may be allowed more readily and with less trouble and difficulty to be cured. If these be wounded, the excrement does pass out by the wound; yet if a great and transverse wound does happen here, it oftentimes does threaten death: but if the wound be small and made directly, it may be cured, and yet must not be allowed void of danger, because the external part of the *Abdomen* is divided. If inflammation adjoins with this wound, and causeth a fever, and this encreaseth, the Patient must necessarily die.

Signs of the small and great Guts being wounded.

In curing of these wounds five Intentions are required. First therefore the lips of the wound are to be brought

Q q

together;

5 Intentions
required as
to the cure.

together; secondly the Gut is to be reduced into its proper place; thirdly convenient Medicines are to be applied; fourthly to prevent any excrements coming to the affected part; and lastly the penetrating wound of the *Abdomen* is to be cured.

1 Intention.

The first intention is performed by suture: but here may we note that there are several ways set down by Authors about this suture. Some of which do take an Elder pith, and through this they put the needle into the cavity of the Guts, and then they sew the *Abdomen* and Intestine together; but this way in common sense is out of the way: others there are who do take a dry Gut of another animal, and this being extended do put it about the wound; but this also is not to be followed, because this dried Gut will soon fall from the moist, and therefore necessarily it must be improper. Another sort there are who apply to these wounds the wings and bodies of Ants, and with their fingers do compress them in, but this way is also idle. The best and most safe way therefore is to sew up these wounds as women do sew cloath, or to stitch up the brims of the wound with the Glovers stitch.

2 Intention.

The quantity of the Gut which is to be taken up should neither be too great nor too small, but in a moderate quantity, for the intestines are extended in their proper motions, and therefore if a greater part be taken up than what is necessary, the Intestine is easily obstructed, and its Cavity rendered too strict, and hence come great pains, and the Gut is made subject to the *Iliaca passio*. The suture being made, the remaining part of the thread is to be left hanging out of the wound; here advising before we begin any suture, that we ought to apply some agglutinative Medicine into the inward part of the Intestine, and for this use the powder of Myrrh, Aloes and Frankincense is very good:

good: but here we must note that these powders are to be applied before the suppression of the blood; but if you in this case may fear the sharpness of Aloes, you may add the powder of Comfry root, and then to take one part of Aloes, two of Frankincense, and one of Comfrey, and these to be sprinkled both upon and into the wound. Some for this use do much commend the Juice of *Pilosella*, *Pentaphyl.* and *Tormentil.* others do use the Juice of Elme, and do account this as an excellent Medicine. They do take the bladders out of the Tree which grow in the month of *May*, and out of those they take a liquor contained in them, and this they use as a most admirable Remedy. *Fallopins* writes that he saw an Empirick who sold this Oyl for agglutinations of wounds, and this being applied to the deepest stabs, within the space of twenty four hours it cures infallibly.

Thus have we shown the first two Intentions, the ³ Intention. third is to reduce the Gut into its proper place, and a suture to be made in the *Abdomen*, it being first Fomented with some warm restringent Wine, over which also may be applied of the former restringent powder.

Fourthly, no excrements are to be suffered to pass to the wounded part. Hence a respect is to be had to the order of diet, and well regulating of the whole body. In this case also may you prescribe the Patient emollient Clysters with some of the aforesaid Powders: inwardly by the Mouth may he take some vulnerary decoctions, such as I have prescribed in wounds of the *Thorax*.

And the last Intention is to close up the lips of the ⁵ Intention. wounded *Abdomen*, as I have already shown.

To conclude all with some Historical Observations. *History.* *Glandorp obs.* 32. writes of a Woman who being desperately tempted by the Devil, wounded her self a little

Of Wounds in Particular.

tle under her Navel, and also wounded the *Hion*, both Chyle and Choler which did formerly flow out of the wounds of the thin Guts were purged out, the wound sticht up, and washed, and over these was applied a restrictive and agglutinative Powder, but all in vain, for inflammation, and gangreen seized the parts, and the fourth day she died.

Hollerius, obs. 17. libello proprio writes of one whose venter being perforated with a sharp Sword, the small Guts were hereby wounded with a part of the great, both Guts and excrement passed through the wound, yet after a long time the Patient was recovered.

Another.

Jacotius Com. 2. ad Aphor. 17. lib. 1. sect. 3. Coac. Hipp. pag. 1002. writes that the *Jejunum* being the thinnest of all the Guts is held to be incurable being wounded, in respect of the largeness of its Vessels, thinness of its coat, and nervous nature, bordering upon the Liver; yet this hath been seen cured, and is agglutinated with a more easy agglutination.

Histories of wounds of the great Guts.

Paræus l. 9. c. 33. writes that he hath cured many who have been wounded with transverse wounds in the belly; the which have recovered, the first of which he mentioneth of a *Portugal* who being wounded with a Sword, cutting the whole body transversely, so as the Intestines being wounded, a great plenty of excrements fell out of the wound, yet he recovered. The second is of *Agidius* a Noble-man, who being wounded in the middle of his body, so as that for many days the blood came out by his Mouth and *Anus*, whence might be collected that the Guts were wounded, yet in twenty three days he was cured.

Another.

To end this, *Glandorp. cap. 36.* writes of a young man of eighteen years of age, of a good habit of body, who received a wound above his navel three fingers long, out of which did hang part of the *Omentum*.

tum.

~~tum~~ with part of the Colon, the Colon was also seen wounded, for excrements came from it by the wound: this Intestine was presently stitched up with the Glovers stitch, afterwards was washt with warm sharp restraining Wine, then was sprinkled this Powder. & Powder.

Bot. armen. ʒiij. sang. Dracon. Myrrh. Mastich. an ʒj. far. volatil. ʒij. Rad. Tormentil. Pentaphyll. an. ʒij. misce. The wound was handled as that it might be covered with flesh, the circumjacent parts were anointed with Oyle, and an anodyne Cataplasme prescribed for easing of pains, he being well defended from cold and air, beyond all expectation of many he recovered.

CHAP.

CHAP. LXV.

Of Wounds of the Liver.

WE come next to discourse of the Liver, being in Latine called *Jecur, quasi Juxta Cor*, being a large bowel seated in the right Hypochondry under the *Diaphragma*, round and smooth in its convex part, and in its lower part concave. Its substance is soft and red, much resembling concrete blood. *Malpighius* who by Microscopes hath most accurately viewed its substance and inwards parts, hath herein observed many things unknown to former ages. As first, the substance hereof in Man is contexted of Lobes, and these framed out of the Glandules, the which affording a heap of small Ramifications, are invested with a proper circumscribing membrane. And that the whole mass of the Liver doth consist of rough Glandules, and diverse Ramifications of Vessels, and hence is it, that they should work together, Nature hath necessarily interceded a commerce between these Vessels and those Glandules. Thirdly that the Vessels of the Port, hollow, and biliary *ductus*, do run through all the branches into these little Lobes in an equal number, and that the branches of the Gate Vein do carry the power of the Arteries, and that there is such a commerce and society between the Gate-vein and biliary *ductus*, that both their ramifications are strongly knit by one and the same knot. The ramifications of these Vessels are not joined together by *Anastomosis*, but these rough Glandules constitute the chief part of the Liver, and so they order some of these for conveying others for receiving into the same. Hence may be conjectured that the Liver is a conglomerated glandule, straining the *Bilis*.

lis. And hence may we well contradict the opinion of the Antients, who did ascribe to the Liver the principal faculty of sanguification; for we evidently see that it is but as a colature for the *Bilis*. It's covered with a small membrane adhering to its *Parenchyma*, and from this do many small watery bladders arise, from whence cometh the Dropsie hereof, as *Platerus* observeth. It's tied by three ligaments, to the *Abdomen* by the umbilical Vein; secondly to the *Diaphragma* upwards from the right part, by a large thin membranous ligament taken from the *Peritoneum* called *Suspensorium*; the third upwards also to the *Diaphragma*. It's made of a *Parenchymatous* substance, much resembling the substance of a *Bullocks Liver*; the uses of which *Parenchyma* are very considerable, showing it self to be the principal part of the Liver, the other parts being but as subservients to it, for the ligaments do strengthen its site, a coat covers it, the Gate-vein brings it blood, the common Capsula administreth to it, the Artery and Hepatick Nerve do pay their service partly to the Port-vein, partly to the common Capsula and biliary pore, the small branches of the *Vena Cava* and Hepatick *Ductus* do take hence their blood, it separates the *Bilis* from the blood, and is as a colature here ordained by Nature for performing this office. But not to dwell too long here, we pass to its colour, and this is somewhat reddish, in sickly people it is seen to look pale. The Vessels in the Liver are the roots of the two great Veins the *Cava* and *Porta*. The Vessels in the Liver are accounted seven in number, as the branches of the *Porta*, of the *Cava*, of the bladder of Gall, the Capsule of the great vein, the Hepatick Artery, Hepatick Nerve, and Hepatick Lympheducts. To which also may be added the Umbilical Veins. Having thus given you an account of the Liver, its passages, uses, site, connexion, and Vessels, we come now to its Wounds. And here they happen either superficially, or penetrating even its Trunks.

Celsus.

Of Wounds in Particular.

Signs.

Celsus lib. 5. cap. 26. gives us these as Signs of a wounded Liver, *viz.* a great flux of blood in the right side, the sides all drawn up towards the spine, the Patient doth delight to lie upon his Belly, sometimes vomiting of Choler doth happen, the blood which issueth out is thick, the Pulse is hereby depressed, the Patient looketh of a white and ashey colour, accompanied with Cough and Fever, their water is bloody, and by their siege they are seen to discharge both bloody and purulent matter. The wound happens in the right side, and under the spurious ribs in that side, at the hurt hereof the Heart is much concerned.

Prefages.

Superficial wounds here happening may admit cure, but large and deep wounds (*Hipp. Aph. 18. lib. 6.*) admit no cure. If cold sweats attend the Patient, and he is very subject to faint, if the extreme parts grow chilly, these declare death near. If inflammation seconds the wound, hence certainly follows Fever and *Syncope*, a troubled urine, and corrupt excrements, all which are Harbingers of death.

Cure.

If the wound be deep and large, penetrating the substance of the Liver and dividing some of its great branches, this cure is rather to be committed to the Minister than to the Chirurgeon: but where any hopes may offer of cure, where no great flux of blood doth follow the wound, nor any Ichor floweth hence, when the Liver is lightly wounded, here may we attempt its cure, by prescribing a cooling diet, and such as is of an agglutinative quality; and for this purpose, Rice and Barley-water are good, adding hereto Borage-leaves, Plantain, or Panadoes, or Milk, all these to be used until all danger of inflammation be over. For this use also Phlebotomy is very proper, or he may drink Wine mixt and allayed with water, wherein may be boiled Jujubes and Cichory. And if herein evacuation be required, here may be safely prescribed *Cassia, Manna, Diacatholicon, Lenitivum,*

nitivum, or Rhubarb, all which are very good medicines to be taken in a morning. Keep the Body so open that the Patient may have the benefit of nature every or every other day. In these wounds the flux of blood is to be stopped, then apply Turpentine to the wound, adding the fourth day thereto *Bol. Armen.* and Mummy, and lastly, Mastick, Frankincense, and Tragacanth, anointing all its circumjacent parts with oyl of Roses. Outwardly may be injected of this into the wound, both for strengthening the dissected Fibres, and also for their agglutination. *R Succ. Equiset. Pentaphyl. Pilosell. Polygon. Thur. Alum. Rhabarb. opt. Rad. Centaur. major. Sang. Dracon. in gutt. an. q. s. fiat mixtura.* Decoction.
This to be injected into the wound two or three times in a day. A large wound here received is to be stitched up, leaving an Orifice in its bottom for the discharge of the matter and all other superfluities; over which is to be applied *Diapalma* or any other agglutinative Empl. not leaving any patient which is deeply wounded without help, for a doubtful hope is better than a resolved despair, as *Hipp.* writes.

To conclude, *Glandorp. obs. 33. fol. 166.* writes of a young man who being of a good habit of body received a wound in his right side at the end of the three bastard Ribs, in which a great part of the Liver was wounded also. The wound was eight fingers broad, and yet not penetrating all over the *Abdomen*. Hence followed a great quantity of blood. The Liver Vein of the right Arm was breasted, from whence was drawn four ounces of blood. The lips of the wound in the places where it had not penetrated were sown up, and to the Liver was applied this following Powder. *R Terr. Lemn. Bol. Armen. an. ʒi. Troch. de Carab. Terr. sigillat. an. ʒij. Lap. Hamatit. ʒiʒ. farin. volatil. ʒiij. misce fiat pulvis subtilissimus.* Powder.
To the wound was applied *unguent. alb. Camphorat.* for asswaging of pain and Inflammation, and

Liniment.

Catapl.

Medicate
Barley water.

Clyster.

Epitheme.

Troches.

this Liniment with the following *Cataplasm*. *R. Ol. Ros. ʒss. Violar. ʒiij. unguent. Santal. ʒij. misce. R. Herb. Violar. Cichor. Endiv. recent. an. pug. iij. sum. Aneth. Scord. Hyperic. Centaur. n. p. ij. Flor. Cham. Melil. Rosar. an. pug. j. Farin. Hord. Fabar. an. ʒss. Orob. ʒj. cum Vin. rubri q. s. fiat Catapl. sine addendo ol. violar. ʒss. Axung. Gallin. ʒss. Vitell. Ov. n. j.* To the lips of the wounds were put Tents and dofills armed with a digestive. For his drink he was ordered this following. *R. Hord. bene mundat. M. j. coque in f. q. aqu. pluvial. ad ʒiij. colatura adde Fol. Taraxac. Endiv. an. M. ʒ. sem. anis. ʒiij. Cinamomi ʒss. Uvar. passular. ablut. ʒj. colaturam serva ad usum.* Ofttimes did he drink whey. Sometimes in a morning was given him an ounce of Syrup of Cichory with Rhubarb. And that which was very strange, he had no feaver till the twenty first day. The which then happened with watchings and great pain, for which was prescribed this Clyster. *R. Rad. Alth. recent. Consolid. major. an. ʒss. Herb. Malv. Alth. violar. an. M. j. Taraxac. Sonch. Cichor. an. p. iij. ʒ. Cham. Meliot. Scord. Hyperic. an. pug. ij. sem. Anis. Fœnicul. an. ʒiij. Lin. fœnugræc. an. ʒss. coquantur in f. q. aq. ad ʒix. colatura adde Electuar. de Bacc. Laur. ʒvj. Ol. Sanicul. Lillior. alb. an. ʒj. Succ. Epatic. ʒss. Butyr. recent. ʒvj. Vitell. Ov. n. j. misce.* With this he was somewhat refreshed. After which was prescribed an Emulsion, and to the Region of the heart was applied this *Epitheme*. *R. Aqu. Nymph. Laſſac. Borag. Rosar. an. ʒvj. Spec. tr. Santal. ʒj. Cordial. temperat. ʒj. misce.* His spirits beginning to renew beyond hopes or expectation, he was ordered these comfortable *Troches*. *R. Spec. Aromatic. Rosat. Dialacc. an. ʒss. de Gemm. Diacorall. an. ʒj. Margarit. præscript. ʒss. Sacchar. albissim. q. s. solut. in aqu. Cichor. ʒij. fiant Tabelli, sine addendo Ol. Anis. gutt. iij.* The wound of the Liver began to consolidate, and incarne, and at length was produced a fair Cicatrice, and with admiration

tion of all he was restored to his former health.

Foreſtus, Obſ. 3. lib. 6. Obſ. Chirurg. writes of one who ^{Another.} who being wounded in the Liver, out of the oriſice of which wound did hang a piece of the Liver, *Carpus* in his firſt viſit repoſed it, the which part Nature afterwards ſeparated. The day following in the morning was this preſcribed. *R. Rhabarb. opt. ʒj. Mum. gr. 10. Rub. Tinſt. ʒj.* ^{Potion.} *cum pauco vini rubri fiat potio.* His diet was bread dipt in water, afterwards was ordered him bread put into chalybeated water, in which was boyled a bagg which contained theſe things in powder. *R. Maſtich. Tragac. Gum Arabic. Thur. ſem. Plantag. an. ʒʒ.* and this boiled bread he eat of until the flux of blood was ſtopt. The third day and alſo the fourth, fifth, ſixth and ſeventh day he took of this following Syrup. *R. Syr. Myrtin. ʒj. Endiv. ʒʒ.* ^{Syrup.} *Aqu. Endiv. Plantag. an ʒʒ. Miſce.* The eighth day was preſcribed him this following. *R. Rhabarb. elect. ʒiiij.* ^{Potion.} *Scœnanth. gr. viij. Mann. elect. ʒij. cum. Aqu. Endiv. Chamomel. q. ſ. fiat potio.* His wound was thus dealt with in the ſecond viſit, the blood being cleaned a Tent was armed with this compoſition and applied, *R. Sang. Dracon. in gutt. Myrtill. Bol. Armen. an. ʒij. Roſar. rubr. M. ij.* powder them all finely, and with adding hereto the white of an egg make a mixture. The circumjacent parts were anointed with *Ol. Roſar.* and powder of Dragons blood was ſprinkled upon the part, over which was applied a bowliſter or ſtuph dipt in vinegar and ſo preſt out, over which was comprehended the rowler; and the part being thus bound up ſo remained for four days. The dreſſings being removed, a new Tent armed with Oyl of Turpentine and Roſes was put into the wound, ſprinkling upon it of the former powder. Afterwards was applied this *Sarcotick* or *Incarnative*. *R. Ol. Abietin. Myrtin. an. ʒij. Cer. ʒj. Thur. Sang. Dracon. an. ʒʒ. miſce, fiat Unguentum.* ^{Unguent.} Afterwards with *Baſſicon* and other convenient Medicines he was ſoon healed and cured.

CHAP. LXVI.

Of Wounds of the Ventricle.

HAVING drawn all the other parts out by Anatomy, we come next to the Ventricle which is accounted Nature's Workhouse, the Kitchen of the body, wherein are shown the Organs and Instruments that both maintain the family of the body, and its spirits. And seeing the life-tide of every creature is inconstant, and doth quickly passe away, Nature doth endeavour by reason of the continual expence of his threefold substance whereof he consisteth, to conclude the breach by respiration and nutriment. This Ventricle is an Organick part placed in the lower Venter, and is the Instrument of chylification. It lies under the *Diaphragma* as it were hanging in the middle of the body; its left part is largest and more round towards the bottom, and is placed in the left Hypochondry, giving way to the Liver in its right. It hath two Orifices, and both in its upper part, the left of which is generally called the upper mouth of the Stomach. It hath allowed it circular Fibres that it may shut its Orifice. It's by this Orifice that we let down our meat and drink, it's placed in the Epigastrical Region. Its right Orifice commonly called its lower part, doth much differ from the other, for it is narrow, and doth remain shut until an absolute concoction be made of the meat. The Chyle passeth by this *Pylorus* or *Jamitor*. This *Pylorus* by *Helmontius* is held to be the moderator of digestion. It hath three sorts of Fibres allowed it, right, oblique and transverse, and to these some grant these three operations, retention, attraction, and expulsion. It hath three sorts of coats or membranes, the

the first arising from the *Peritoneum* and is the thickest, the second more fleshy, the third nervous, into which the vessels and coats of the Oesophagus, Mouth, and Lips are terminated. And hence is it that we perceive when there is any choler in our Stomachs that we do find a bitterness in our mouths. Its substance is membranous and cold, its figure is round and somewhat long, much resembling a Bagpipe, it's smaller in Women than in Men, its vessels it hath many from the Spleen. *Conringius*, *Horsinus* and others do defend that it taketh its Veins from the Gate-vein, its Arteries it hath from the *Cœliaca*. Its Nerves arise from the sixth pair.

Now as touching its wounds. When the Ventricle is wounded there generally doth happen a *Singultus*, and a vomiting of choler doth succeed, and whatever is taken in of meat or drink at the mouth doth make its quick passage hither. Here follows no great flux of blood, for the Veins belonging hereto are but small, save only in its bottom. It's suddenly stirred up with pains, and hence is speedily inflamed, the motions of its Veins do languish, thin sweats do arise, and hence the extreame parts do grow cold, sometimes both chyle and indigested victuals do pass out of the wound, spitting of blood doth attend these, and cruel pains of the Heart doth seem to be herewith concerned, at length this noble part doth grow hard, being deprived of its natural sustenance. And the wound is made under the *Sternum* in the middle Region. This being cut, death soon follows. For it's the instrument of the first concoction, and doth receive and elaborate what is received into it, and what it findeth unnecessary or useles it throws out by its *Pylorus*. Its outward part if only wounded may be cured having in it a fleshy intertexture spun of transverse Fibres, but its domestick or nervous part is either very rarely or never consolidated if wounded, being generally replenished with humours and liquors, and hence follow Fevers, Verti-

Signs and
Presages.

Vertigo, Syncope, Singultus, vomitings, and other evil symptoms, the which do pass away to the Heart, and make it share and communicate of its direful accidents.

Cure.

When the Ventricle is wounded, we are to enquire into these its proper signs, and if possibly, to gain the true place of the wound; the which having once purchased, we are to see how far it penetrates. In these wounds all fatty and oleaginous meats are to be shunned, and such as are Euchymick and easie of digestion are to be here elected. Let the Patient eat and drink very sparingly. Outwardly may be applied a Decoction made of chalybeated water wherein have been boiled Comfrey roots, Sumach, Myrtills, Cicers, and Pimpinell. The common and general Intention of the inward parts is, that all such things are here to be prescribed which are most familiar to the nature and constitution of the Patient, and such as may most properly be allowed for his nourishment, such as are Partridge, Pheasant, Rabets, Blackbirds, Plover and the like. If the body be plethorique breath a Vein. If cacochymick discharge the peccant humour with some convenient Cathartick. These rather to be given Clysterwise than by the mouth. This he may take every morning by his mouth, as Syrup of Myrtills, of dried Roses mixt with the decoction of Centaury, Comfrey and Betony, to which may be added a little powder of the *Troch. de Carabe* or *Spod.* ʒj. in these cases also *Saccharum Rosatum* is good And because agglutination is the greatest intention in these wounds, you may order your Patient to take every morning of *Eleſuar.* *Diaſpermat.* ʒi. dissolved in the decoction of Comfrey or Betony or Cinquefoil, and this to be taken every morning and at four in the afternoon. The wound if it be large is to be sticht up, which is very rarely done, or first to be covered with Turpentine, anointing all its circumjacent parts with oyl of Roses, Camomile, Mastick,

Of Wounds in Particular.

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Mastick, and the like, and fill up with *Basilicon*, and skin with *Diapalma*, leaving the rest to Nature to perform. If the wound be so large that it cannot be sticht up, then are we to dilate the wound of the *Abdomen*, and hereby enquire whether the Chyle doth pass out of the wounded Ventricle, and falleth into the cavity of the *Abdomen*; in this case the wound is not to be sticht up, for the Chyle thus passing among the Guts doth corrupt them; and hence the wound is to be kept open, prescribing inwardly such medicines for the Patient as have both an astringent and agglutinative quality. In these cases *Troch. de Spod. de Terr. Lemn. de Carab. and Diapyspermat.* as I have already shown are very good and proper. Outwardly may be injected into the wound two or three drops of this following medicine. *R. Ol. Mastick. ℥j. Abietin. ℥j. Thur. ʒij. pul. Tormentil. vel Chamomel. ʒi. hyperic. rad. Consolid. major. an. ʒj. verm. Terrestr. n. ʒ. Croc. ʒj. vini nigr. ℥ij. misce, coquantur ad vini consumpt. postea cola,* and dip your Tents and pledgets herein and apply them to the wounded parts. And here in all wounds of the *Abdomen* are we to observe that we defend them from pain and inflammation by anointing the circumjacent parts of the wound with oyl of Roses mixt with White-wine. *Glandorp* hath a remarkable History, which indeed ought to be communicated to posterity, of a Countryman of *Prague* thirty years of age, who swallowed a Knife which was nine transverse fingers long, being constituted or brought hereby into an inexplicable narrowness, which no art could possibly be thought to remove or extract; yet by Gods mercy in this desperate case it was conjectured that the Loadstone, and other attractive Instruments might work somewhat herein: hence attractive medicines are applied which made the end of the Knife to appear upwards above the upper mouth of the Stomach, where in such a desperate case, no more proper way could be found than Section which.

Of Wounds in Particular.

which was performed by *Florianus Matthiſius* of *Brandenburg*. Thus the Knife which was for ſeven weeks and two days lodged in the upper part of the Ventricle, and had contracted a ſtrange colour, was taken out by him, the wound being made by incision, proper medicines being applied the Patient recovered, and by his Wiſdom, Industry and Art he was perfectly cured.

Another.

Fallopins de vuln. cap. c. 12. writes that he cured both a Woman and a Man from whom both chyle and meat did paſs. He cured a Woman, who being ſhot by a leaden bullet from the fore & back part, or quite through, perfectly recovered. But if a great wound do happen in the mouth of the Stomach, it brings ſpeedy death with it becauſe of the excellency of this part, and its conſent it hath with the Heart.

Another.

Jac. Orthans lib. Obſ. prop. writes that in the City of *Fuldana* two induſtrious and judicious Chirurgeons affirmed to him that they had a Souldier a ſtrong man and one of a good courage in hand, who was wounded by a Countreyman about the left Hypochondry, the which wound when they had well examined, and inquired into its depth, it was found that the Stomach was wounded in its right ſide, and ſo perforated, that the meat and drink which the Patient took in by his mouth threw it ſelf ſoon out by the Orifice of the wound, the finger being put over it, it did more evidently appear. The event hereof being conjectured to be ill both by theſe Chirurgeons and ſuch as were ſpectators, it was conſented that this wounded part of the Ventricle ſhould be brought outwards to the lips of the wound and that the wounded Stomach and the lips of the wounded *Cutis* ſhould be ſown together, although this operation was conjectured not to be void both of pain and danger; but the thing was done, ſo as the wound being conglutinated, no further danger enſued, but the wounded man was reſtored to his priſtine health.

CHAP.

CHAP. LXVII.

Of Wounds of the Spleen.

THE Spleen is an Organick bowel seated in the left Hypochondry, between the Ventricle and Ribs. In man this is generally one, and very rarely exceeds this number. In its convex part it's tied to the *Diaphragma* superficially, its Fibres do arise from the *Peritonæum*. Its blunt part adheres to the *Omentum* and its neighbouring parts. Its magnitude is various in men, according to their variety of constitution and bodies. *Spigelius* doth observe that those that have large Veins have also a large Spleen. Its figure is long; its colour is sublivid or of a leady colour. It's covered with a double membrane, the outward arising from the *Peritonæum*, the other is its proper coat, between either of which is inserted a plenty of Lympheducts endowed with many valves. It hath innumerable thin and strong Fibres framed out of Filaments intertexted with admirable art. Besides these Lymphatick vessels, it receiveth other vessels as Veins, Nerves, Arteries. Its Arteries arising from the left branch of the *Cœliaca*; it sends forth the splenetick branch out of its blunt part. Its Nerves it doth receive from the sixth pair. Its office is to make a subacid matter out of the arterious blood. We come now to its being wounded, where we may by these signs collect its hurt. This part being well replenished with Arteries, being of a spongy and loose substance, framed and nourished as it were by a thick, black and melancholick blood, when this part is wounded there follows inflammation; yet when it is lightly wounded, these wounds are of no great moment, for inward medicines may with ease reach this part.

S f

These

these wounds are collected from their site also happening in the left Hypochondry by the blood issuing thence. These wounds are to be cured as you do cure wounds of the Liver, and therefore I shall not here trouble you with repetitions.

History.

Potion.

Empl.

Potion.

Forest. Obs. 2. writes of a Souldier being wounded in the Spleen, for which *Carpus* prescribed this following Syrup. *R. Syr. Rosar. ℥iſſ. aqu. Cichor. cand. equin. Consolid. major. an. ℥j. misce*, and with *Troch. de Carab. ʒj.* let it be aromatized. To the wound was applied small Tents infused or dipt in oyl of *Hypericon, Rosar. and Abietin.* of each equal parts, the which was thus followed for some days; in the second day over these was applied this *Empl. R. Vin. opt. ℥iiij. Acet. ℥j. & ann. far. fabar. q. s. fiat Empl.* After this was applied an Incarnative Unguent, and then a cicatrizing medicine. In the beginning breathing of a Vein was prescribed, and this Potion directed after the Syrup. *R. Cass. novit. extr. ʒvj. Diaprun. salutiv. ʒj. Rhabarb. ʒij. Spic. gr. vj. cum decoct. commun. fiat patia*, and after this method was he recovered.

CHAP.

CHAP. LXVIII.

Of Wounds of the Kidnies.

THese parts by the Greeks are called νεφει and νεφρον which signifies to rain, or and νεφρον from a defluxion of humours. They are in number two, that the one coming to a mischance the other may act for both. They are planted between the two Membranes of the *Peritoneum* at the sides of the *Cava* and *Aorta*, the right being somewhat lower than the left. Their magnitude is much alike, their length is commonly three *vertebres*, sometimes four. Their figure does somewhat resemble an expanded *Aserum* leaf, outwardly gibbous and recurvated, inwardly somewhat concave. They are covered with two membranes, the outward of which is common and arising from the *Peritoneum* is called *Adiposa*, into this does pass *Arteria adiposa*. And out of this does pass *Vena adiposa*. This membrane does annex either Kidney to the Loyns and Diaphragma, the right also to the *Cacum*, the left to the Spleen and Colon, its inward coat it gets from the outward coat of the vessels. Either Kidney hath allowed it two large sanguiferous vessels, an Artery, and an emulgent Vein. In the inward part of the Kidney is framed a *Pelvis* or *Infundibulum*, being a membranous cavity, it appears of a fibrous substance. The use or action is to separate and discharge the redundant serose humidity from the blood, which is brought thither by the emulgent Arteries, of which blood in its transition through the Kidneys glandules, venary fibres, and papillary caruncles, a good part of this serum is separated and distilled into this *Pelvis*, and thence being carried into the ureters is sent by them into the Bladder.

As to its wounds

Signs.

Presages.

Care.

Cels. lib. 5. cap. 26. writes, if the Kidneys be wounded to the *Pelvis*, clots of blood will come forth with the urine, causing a great pain in the wounded part, and this reaching the Groin and Testicle. These wounds are known by their site and symptomes, for hence do follow suppression of Urine, or change of its colour, the patient does tumify. If the wound be made by the back and the Kidney penetrated this way, the patient cannot escape, for in this case the wound must pierce the *Psoas*. If the wound be made by the side, and does but only penetrate the papillary Caruncles, it may be cured with difficulty. If the wound penetrates the *Pelvis* it must necessarily be lethal, in that the drain of the Serum from the Veins and Arteries is hindred. Then because its substance doth not without difficulty yield consolidation. If its Vein and Artery be wounded, here flatter not your self with any hope of cure: besides they are always nourished with waterish blood, and almost continually in motion, and being planted so near the *Vena Cava*, wounds here happening cannot be void of danger. You seeing this cure very dangerous to undertake, should not be very forward to be concerned therewith, but according to *Hipp.* rule, because a doubtful hope is better than a resolved despair, you are here to use the same outward method which hath been already prescribed in penetrating wounds of the *Abdomen*. Inwardly are you to begin here with a good order of diet, then an adequation of humours, the which sometimes is made by Phlebotomy, or by Solution of the thin humours, or by a speedy evacuation. If a great plenty of thin and crude humors do appear, vomiting in this case is good, for it both does deterge, evacuate and revel fluxions. Let his diet be of good Juice, as Pheasant, Partridge and the like, reer Eggs and Panado is good here, ordering him to drink but little, for this does both disturb and hinder the best of Medicines from curing. And rest

rest here is a great advantage from these. If much blood flow from the wounded Kidney breath a Vein in the Arm, and this repeat as oft as need requires. And then order such Medicines as may stop this flux. Into the wound may be injected a Traumatick decoction made of *Comfrey* roots, *Tragacant.* dissolved in Wine, or *Polygonum* and Juice of *Plantain* with *Posca*. Over which may outwardly be applied a Cataplasme made of *Palmes*, *Acacia*, *Hypocistis* boyled in red Wine. Such sanative injections, and vulnerary potions as I have already set down in Wounds of the Liver and *Thorax*, may here with great advantage be made use of.

A Souldier being wounded, in which wound the right *History.* Kidney was also wounded, was thus cured by taking every morning of *Terr. sigillat.* 3j. *Terebinth. Cnpress.* 3j. these being mixt together. After which he took a little draught of white Wine, which Wine presently did come through the wound a little tinged. Outwardly was applied *Unguentum Sanctum*, already shown you in Wounds of the *Thorax*, by which in a short time he was recovered.

Fallop. lib. de vuln. cap. 12. writes that he saw the left Kidney pricked and wounded, because the Parenchyma, like thick blood concreted into flesh.

Dodonæus in Schol. ad cap. 22. writes of a Woman which was by a Dagger wounded in the Loins, upon which she ejected bloody and purulent Urine, until both the wound and the Kidney was cured.

CHAP. LXIX.

Of Wounds of the Bladder.

THE urinary Bladder is a membranous part of the lower belly, the which receiving the *Serum* from the Kidneys doth retain it in it for a while. It is seated in the *Hypogastrium* between two coats of the *Peritoneum*, in the cavity which is efformed by the bones of the *Os Sacrum*, *Coxendix* and *Pubis*. It consisteth of a threefold membrane. It hath a longish and globous or pyramidal figure. It hath one cavity perviated with three Foramens, two at its neck, and one at the end of the Ureter entering it. It receiveth its Arteries from the Hypogastrical Arteries passing into the sides of its neck, carrying blood to it for its nutriment. It admits Nerves from the sixth pair, and the marrow of the *Spina Dorsæ*. It's divided into a neck and a bottom, its bottom lies upwards, its neck downwards, and is the lower and narrower part thereof. Its neck is constituted of many Fibres chiefly transverse and orbicular encompassing the whole body of the bladder here constituting a Sphincter Muscle, constringing the neck of the bladder, so as the urine might not involuntarily fall out. Having given you this short draught of the bladder by Anatomy, we are next to enquire into its wounds, where first we are to enquire of the signs hereof.

Signs and Pro-
sages.

Celsus lib. 5. cap. 26. writes these as Signs hereof, the urine doth come bloody and sparingly. If the body of the bladder be wounded, the urine doth fall into the cavity of the *Abdomen*, and the pain will communicate it self to the Testicles and Inguens. The Stomach is herewith affected, a vehement pain doth accompany the Chest,

Chest, and anxiety with cold Convulsions and death follows. Wounds happening in the neck of the bladder are to be cured as we see by daily experience in Lithotomy, or extraction of the Stone from thence. Wounds also in the lateral parts thereof happening about the Groin are also curable, in such as are young and of a healthful constitution. Hipp. writes that wounds in the membranous parts of the bladder are incurable, *Aphor. 18. sect. 6.*

As to its cure. Things outwardly to be applied may properly be accounted these. As, to three parts of Turpentine to add one of oyl of St. *Johns-wort*, and over this to

Cure.

apply *Empl. Diapalm. Cyprus* Turpentine with the yolk of an Egg mixt together with a little Vernish is also good here. In such wounds as happen so opportunely that we may come at them, falling upon the fleshy part thereof, you may here proceed by injections put through the urinary passage, such as are these two Decoctions.

R. Hard. mundat. Rosar. rubr. Centaur. min. an. M. s. vini Decoction.

nigr. anster. q. s. pro Decocto. To which add in the end

Rhodomet. ℥ij. And use this. Or *R. Cydonior. incisor. n.* A vulnerary

℥ij. Equiset. Sumach. Bacc. Myrtill. an. ℥ij. Rosar. potion.

rubr. pug. ij. Balanst. ℥ss. coquantur in aqu. pluvial.

℥b 16. ad 3. partis consumpt. coletur, coletura solo.

Syr. è Rosis sic. Mel. Rosar. an. ℥vj. Syr. Myrtin. ℥ij.

Gum. Tragac. ℥ij. of which let him drink and nothing

else for ten days. If you desire a more drying injection

take this. *R. Rad. Consolid. major. Centuar. fol. Oliv.* Injection.

Myrtillor. an. q. s. Amyg. ℥ss. aqu. chalybeat. q. s. pro

decocto, sine addendo Mell. Rosar. ℥ij. pro usu. If it be

too sharp add a little milk hereto, all these to be applied

warm, and so as they may beget no wind.

Glandorp. Obs. 38. fol. 176. writes of a Souldier who *History.*

having received a wound upon the *Os Pubis*, and being

thrown backwards hereupon, the urine flew out copiously.

That night he was corrected with pain in his head.

Conveni-

Convenient things being ordered him, the third day he died, the body being opened the bladder was seen wounded in that part in which the Urachus is inserted.

Another.

Riverius Obs. 5. morbor. infrequentium fol. 75. writes of one who being shot by a bullet through the urinary passage, this wound penetrating the bladder, and the right side of the *Os sacrum*, so that he urined by the back part of his wound, the urinary passage being only hurt, yet he was restored to his former health, first by applying a defenlative, then with arming the Tents with *Basilicon* mixt with the yolk of an Egg, afterwards with *Unguent. de Resina*, and lastly with Sarcoticks and Epouloticks.

Another.

Felix Wirtz Anno 1581. in the month of September, a Mariner, had a Knife struck into the right side of his *Abdomen* four transverse fingers above the *Pudenda*, so as the urine did wholly pass through the wound, the which afterwards was well cured, by prescribing Clysters first, then the wound was not dressed with Tents armed, but applying over it a consolidating medicine, over which was applied a gummy plaster. Inwardly did he daily twice in a day take a decoction of Orpine, which is excellent here in these wounds, abstaining from hot meats, contenting himself with little drink, and lying in his bed downwards. By which observing he in three days had his urine flowed out by the Urethra, and was afterwards perfectly healed.

Another.

Casparus Baubinus in Append. ad Rouset. de Partu Casareo writes of a Fisherman who had his urine speedily suppressed, the which would not by any remedies or by the Catheter be removed, hence did arise a great Tumour of his belly, and he was come even to the last of danger: he being advised with, orders incision hereof whereby might be found out the cause of this his suppression. When therefore Incision was first made in the Inguen, as there it is their way of cutting, the Lithotomist
in

in separating the carnosity which was the more protense by reason of the bladder being thus distended by the urine, did open it, and the wound was produced, and the urine spun out with a great force, whereby the Patient was soon at ease. The Testicle in the same side being taken out, the wound continued its passage by the wound. The wound being healed, a Fistula remained in the region of the Groin, through which a short Catheter being sent, the which he generally carried about him, within a small while his water passed without any detriment, and no longer did he urine through his yard. At this section *Platerus* and *Banhinus* were present amongst the rest.

T t

CHAP.

CHAP. LXX.

Of Wounds of the Testicles and Penis.

WE come last of all to the parts appointed for procreation, being the *Genital* parts, where we are to stay a while and view these parts by Anatomy. And first to begin with the *Testes* or *Testicles* being proper parts hanging out beyond the *Abdomen* and planted in the *Scrotum*, they are called *Testes* because they testify a mans *virility*. They are in number two, partly that the seed may proceed more happily; partly that one of these being taken away, it might be necessary for the other to perform the office of both. They are placed at the root of the *Penis* and hid up in a *Scrotum*. They much resemble a Pidgeons Egg. They have a peculiar substance the like of which is not to be seen in the whole body, white and soft, being made of innumerable minute funicles of seminiferous vessels. They are in a great error who do account these glandules, for they neither have in them the temper, substance or use of glandules. They receive small Arteries from the *Spermaticks*, and do send forth small Veins to the *Cava* and left *Emulgent*. Its Nerves it receives from the sixth pair. The sanguiferous Vessels do enter the substance of the *Testicles*, and whether they do end in the albugineous coat, is a doubt not yet resolved. They are wrapt about with an albugineous and vaginal coat. They have two Muscles allowed them, called *Cremasteres* or *Suspensorii*. Outwardly they are covered with a *Scrotum* as with a Purse or Bag. To these also do belong, *Vasa deferentia*, *Vesicula seminaria*, *Prostata*, and the like, all which being at large discoursed of by Anatomists I shall speak no further hereof. Now come we to the *Penis*, where also are we to see how

how this *virile* member is framed and constituted. The Seed being made ready in the former Vessels, does require a peculiar Instrument for its injection, for the performance of which Nature hath ordained that part which we call *Penis*. This being an *Organick* part appointed for injection of the *Sperm in Uterum*, and also for excretion of the *Urin*. It's placed at the root of the *Os Pubis*, it hath a long and almost round figure, not being alike in all people. It consists of a *Cuticula*, *Cutis*, *Membrana Carnosa*, and a proper substance, wanting fat. The *Urethra* or Urinary passage is placed in its lower part, which inwardly is invested with a thin and sensible, outwardly with a fibrous and cavernous membrane, continued all along its neck. It hath a good large passage, save only in its fore-part where the *Glans* is joyned to the nervous bodies. Its use is to convey and conduct the seed through it, and also to let the *Urin* pass through it, and hence Nature hath appointed two small Cavities into it for the letting the seed into it. In the upper part of the *Urethra* lie two nervous bodies, constituting the greatest part of the *Tard*. At the end of the *Penis* is planted a *glans*, or by some called *Caput Penis*, in the which the two nervous bodies do end with the *Urethra*: it hath a Turbinat Figure; its colour is somewhat sublivid, but tumefying it is red. It obtains a proper substance, being fleshy, soft, spungious and of a quick sense invested with a thin *Membrane*. Outwardly it is covered with a *Præputium* which is framed of a *Cuticula* and *Cutis*, in its lower part it is tied to the *Glans* by a *Frænum* or bridle. It takes its Arteries from the *Hypogastricis* sprinkled through its nervous bodies running through its length, it sends forth Veins inwardly to the *Hypogastricis*, outwardly to the *Pudendis*. It's moved by four Muscles.

Thus have I given you an Anatomical description of these parts, we now proceed to them being wounded.

Signs.

Where first we are to inquire into the signs. And because these parts are endowed with an exquisite sense, great care is to be had as touching their Cure that they may not be vexed with pain or Inflammation, these parts being very plentifully stored with Veins and Arteries. For as *Paracelsus* writes, wounds happening in these parts are accompanied with great pain, and very subject are they to inflammation. The whole body therefore being well ordered, and a good diet prescribed, and Phlebotomy directed, we are next to come to the wounded parts, where we are both to provide against pain and inflammation, for which uses these are very proper Medicines. Against pain may be ordered such things as may mitigate it, and for this, *R. Malv. Violar. Solan. an. M. j. Furfur. png. ij. coquantur in Sapa*, and apply it to the part. Oyl of *Roses*, *Chamomile* or *Dill* will do the same, anointing the circumjacent parts therewith. And for Inflammation by *Rondeletius* we are advised to use Repellers and breath a Vein, and for this use also may be applied a *Cataplasm* made of Bean Meal, Wine and Vineger boiled together to be applied warm and renewed until the pain remit. If it cease not by these, you may add powder of *Camomel* flowers, *Melilot* flowers, Red *Roses*, and *Elder* flowers, and make it into a *Catapl.* to the wounded part. Oyl of *S. Johns wort* mixt with *Turpentine* is a good Medicine. If the wound be large stitch it up, leaving an Orifice in its lower part for the discharge of the matter, anointing the circumjacent parts with Oyl or Unguent of *Roses* and Oyl of *Mastich*. Then the wound is to be deterged with honey of *Roses*, filled up with *Basilicon*, and incarned with *Diapompholigos* and skinned with *Diapalma*.

History.

We shall conclude this with some Histories. I begin with that of *Forestus* which he hath *Obs. 6. de Pen. & Virg. vitiis fol. 39.* where he writes of a Taylor who being vexed with an inflammation of his yard, which inflam-

inflammation he had contracted in the venereal embraces of a Woman, not much minding it at first, having a Wife being a kind of a Doctress did acquaint her herewith, who ordered him a strong Purge made with *Electuar. è suc. Rosar.* This inflammation with inflation of his *Penis*, and tumour of his *Scrotum* and Testicles still encreasing, he required the help of another and better Chirurgeon, who by applying very hot medicines hereto within three days had made an *Esthiomenus*. The Chirurgeon having all his Instruments ready for taking off his yard, with medicines before the operation, the Patients friends called *Forests* into consultation, and seeing that the *Esthiomenus* had not only possessed the whole *Penis* but had also reached the Testicles, he conjectured that if the whole members should be taken off the Patient would die under the Chirurgeons hands in the operation; and because in one part hereof the *Penis* did appear black and corrupted, and as if it were mortified and stinking, it was by general consent agreed to have all this removed because they were not to be brought to their former natural form. And this to be done with a hot Knife. Within a while the whole member grew corrupted, whose corruption reached the Testicles, this Chirurgeon would also have this amputated, but this was not agreed upon. Another Chirurgeon being advised with, contrary to the former opinion would by no means allow any further incision, but doth order this following *Catapl. R Farin.* Catapl.
Hord. ℥i℔. Far. Fabar. ℥j. coquantur cum lact. ℥viij. his adde Succ. semperviv. coque ad consumpt. Succ, tunc adde pulv. Rosar. rubr. fl. Cham. an. ℥ij. misce pro Cataplasmate, by which Cataplasim both the inflammation and flation were allayed in the part, but the member seemed still to putrify, and hereupon a Fever to arise. Breathing of a Vein not being at first prescribed was not now to be attempted by reason of his weakness. Wherefore was prescribed him this Julep. *R Aqu. Fumar. Borag.* Julep.
Cichor.

Emulsion.

Cichor. Endiv. Lupul. an. ℥i℥. Syr. Acetof. Citr. de Fumar. Syr. Nennubar. an. ℥j. Spec. arom. Triasantal. an. ℥ij. fiat Julap. And because he could not rest, was ordered this Emulsion. *℞ Hord. mund. pug. j. Amygdal. dulc. depilat. ℥ij. sem. 4. frigid. major. sem. Papaver. alb. an. 3j. fiat Hordeatum ad lbj. huic adde sacchar. albiss. q. s. ad emulsum.* The remainder of the *Eshhiomenus* was

Gargarism.

horrible in aspect, so as the whole member seemed to be corrupted with a black ulcer, passing into a gangrene, putrifying the parts, and with that ill smell that no man could come near him and this on a sudden. While therefore the Chirurgeon was cutting away these putrified parts, the smell so encreased that one could scarce remain in the room. Hence the Fever encreased, and out of this ill smell did arise inflammation of his Throat, for which was ordered this Gargarism. *℞ Decoct. Hord. mundat. & Liquirit. lbj. Syr. violar. Ros. sicc. an. ℥j. misce pro Gargarismate.* And for his drought was prescribed him this following. *℞ Syr. violar. ℥i℥. Syr. granator. ℥j.* and this he took frequently. After this the Fever began somewhat to abate, and the corrupt parts to be taken off by degrees. The abovesaid Cataplasim was applied to the parts again. The putrifaction was of that largeness that it proceeded even to the Testicles. Over the Cataplasim was applied a double linnen cloath dipt in Renish-wine. But at last the Patient died. The Chirurgeon which only remained with *Forestsus* applied only this Digestive to the putrified cut parts. *R. Terreb. select. lbj. vitell. Ovor. n. 6. Mell. Rosar. colat. ℥ij. Ol. Ros. ℥ij. Farin. Hord. ℥iiij. fiat Degeſtivum.* Afterwards he used this incarnative powder with the Digestive. *R. Sang. Drac. ℥iiij. Mastich. Thur. Myrrh an. 3ij. Gum. Elem. Bol. Armen. Alumin. ust. an. 3ij. misce, fiat Pulvis subt.*

Digestive.

Powder.

Another.

Another History we meet in *Glandorp Obs. 37. fol. 179.* who relates of a young man who being about to take out

out his right Testicle, in his work he made the Testicle to swell and encrease into a great mass, hence succeeded a great delirating pain. The inward Vein of the *Talus* being opened, and a Clyster administred, the whole *Scrotum* with the Testicle and all its circumjacent parts were anointed with oyl of Roses, and above these was applied a digestive and corroborating Cataplasme, the Tent being armed with *mel Rosarum*, over which was applied *Empl. Diapal.* by which he was happily cured. We had two in this our City of *Normich* which endeavoured to castrate themselves upon the very thoughts of not marrying, mistrusting that if ever they should have any children, they could not maintain them: The first of which had taken out and cut off both his Testicles, but hereby occasioning such a flux of blood as was past his skill to stop, he sendeth for a Chirurgion of our Town who speedily stops this and heals up the wound, and cures the Patient. The second not being so courageous, but entering upon his intended operation, could not with such dexterity act his part; but upon undertaking to take the first out, he occasions such a flux of blood as he thought would speedily have rewarded his bold attempt with death. Hence was forced to send for a Chirurgion, who after having stopt the flux did agglutinate the wound, and the Patient remains in very good health.

Benivenius cap. 68. de Abditis, writes of a Monk Another. being cured, who by reason of his zeal of chastity but yet indiscreet and less rational obsequiousness did cut off his *Penis*; from which issued a great flux of blood, which required a great care and industry to stop; For here it behoves every of the Veins to be taken up and to be bound up, that their mouths might be stopt, the which being done, the remainder of the cure was not very difficult until the wound was almost quite cured, and he healed.

I have also read of a Baker who suspecting his Wife Another.
for

for Adultery, to be avenged of her, doth amputate his Testicles, who should she conceive, he was resolved not to own it, making himself destitute for any such operation, by his amputation, whence he should certainly know as he conjectured by this mad trick (than which surely could never be a greater) whether his Wife was honest or not. This story *Acakia* reports, *Com. ad Art. parv. Galen.* Thus have I run through all the parts of the three *Venters*; if any more studious, and a greater lover of Truth and Learning and Practice hath had greater experience than what herein is offered, I desire that he would please to lend some of his light. But I proceed now to the extream parts, where I shall briefly discourse of them, and so conclude this my whole Treatise of Wounds both in General and Particular.

CHAP. LXXI.

Of Wounds of the Shoulder.

AMongst the Joints may be reckoned the Shoulders, Arms, Cubit, Wrist, Fingers, Thigh, Leg, and Foot. We begin first with the *Scapula's*, where we may see the *Scapula* moved by four Muscles, *Serratus minor* substrated to the Pectoral Muscle from the four upper ribs; *Trapezius* or *Cucullaris*, the which does carry the resemblance of a Monks-hood; *Rhomboides*, being a large, broad, and square muscle, and *Levator Patientie*. Having given you the brief Anatomy of this part, as to the cure of these being wounded, by reason of the many Tendons implanted, here must necessarily be used care and industry, for these parts are cold, and hence cold being their greatest enemy you are to defend them from it. As to the Muscles being wounded, you are first to provide against all ill symptomes by breathing of a Vein and a good order of diet, and by Catharticks. And as touching the wounded part, here are we first to stop the flux, then to bring the wound to a fair digestion by Turpentine, Basilicon, the Yolks of Eggs, Saffron, and the like, then mundesie with honey of Roses, Juice of Smallage, &c. Fill up with incarnatives, as *Aureum*, *Fuscum*, *Balsam*, *Lucatell. Arca*. and skin either with *Diapalma*, or *Descativum Rubrum*. If stitching be here required, you are here to take deep stitches, and sow fast, lest through the weight of the arm the wound may fly open again, hereby studying the keeping of every Nerve or Tendon untouched; over this stitched part may you apply some of the former agglutinative powders. And if you think it necessary, put in a Tent at the bottom of the wound

for the discharge of the matter; ever observing to give every part its due motion, and therefore to place it in its right Orb.

History.

Forestus Obs: 24. fol. 109. lib. 6. writes of one being wounded from the upper part of the back in the Muscles of the *Scapula* with a deep and occult wound, not penetrating the inward parts, but lying hid under the Muscles, whence a cavity was made in its bottom towards the lower part, and matter was collected, and brought thence upwards. The Chirurgeon not being careful and diligent enough, the lower part of the wound towards the *Cisti*, did begin to extend it self, the which gave some suspicion to the by-standers, which made them to desire further help; he being hereto called for assistance, he ordered the Chirurgeon to put a pipe into the wound, and into that part to make an incision; the which being done, the matter which was lodged was discharged, and the wound being kept open by pledgets until this was wholly removed, it was afterwards with ease consolidated.

CHAP. LXXII.

Of Wounds of the Arm.

THE Arm hath allowed it eight Muscles, as *Deltoid* *supraspinatus* lifting it up, *Latissimus* or *Ani* *scalptor*, *Rotundus major*, these bringing it down; *Pectoralis*, this bringing it forward, thence called the Box-ing Muscle; *Infra spinatus*, *Subscapularis*, and *Ro* *tundus*, these drawing it backwards. Wounds happen-ing in the bough of the Cubit are dangerous because of the great Veins. Wounds of the Cubit are suspicious also in respect of Convulsion and Inflammations. The German Chirurgeons are very scrupulous in meddling with wounds of the *Biceps*, for that it hath but a slender beginning and ending, but a thick fleshy belly: but of this more in wounds of the Elbow. As to the Cure here, if either the Veins, Nerves or Arteries be wounded, you have already methods shown how to cure these. If any of the Muscles be wounded, to prevent pain and inflam-mation, and stop the flux of blood, keep the body soluble and other parts in good temper. If the wound happens according to the Fibres of the Muscles, a good ligature goes a great way in the cure. If the wound be transverse, you are to stitch this up, leaving a cavity in the bottom of the wound, into which you are to put a Tent armed with a digestive to cleanse it inwardly. Outwardly may you apply some restraining powder and such as may agglutinate, then perform the rest of the in-tentions as I have already shown you.

Alexander Benediſus de Curand. morb. lib. I. History.
cap. 47. writes that he saw a young Nobleman cured of
a wound in his arm, to which, for the present stoppage

of the flux of blood his friends put into the wound some small linnen rags, the which presently felt out again, by applying his finger to the wound: he knew not what should make these to come off so, upon the endeavour of his friends to stop this flux, in so much that he bled afresh, hereby the Patient was freed from a Spasm, and the eighth day he walked through his Chamber.

CHAP.

CHAP. LXXIII.

Of Wounds of the Elbow or Cubit.

THIS part hath four Muscles allowed it, as *Biceps*, *Brachialis*, *Longus*, *Brevis*. Some ordained for its extension, others for its flexure. *Biceps* if it be wounded is not to be concerned with without care and skill. The German Chirurgeons do esteem wounds of this Muscle, which with *Brachialis* doth bend the Elbow, to be lethal. Wounds happening in its beginning are most dangerous, these parts being Tendinous and so of an exquisite sense, being in its beginning double. If the middle body thereof be wounded it carries less danger because it is fleshy, yet hence may follow a flux of blood and great pain. The cure hereof therefore doth chiefly consist in stopping this flux of blood, easing of pain, and in digesting, mundefying, incarning and cicatrizing the wound, all which I have already shown how they are to be performed.

I shall conclude this with a History out of *Forest. Obs.* History.
 19. fol. 93. who there writes of a Student who being wounded about the Cubit of his left arm, so as its whole bone with its Nerves was cut, whence followed great suspicion of Spasm, *Carpus* being hitherto called, reduced the bone to its proper site and place, and the wound being sticht up, and agglutinative medicines being applied over these, a Vein in his arm was breathed. In the second visit Tents dipt in *Ol. Hyperic.* were put into the wound, and then above the future was applied this powder. *R. Thur. Mum. Sangu. Dracon. Bol. Armen. Mastich. an. partes equales*: afterwards the whole arm was anointed with oyl of Roses, and lest a spasm might happen it was

Potio.

Digestive.

was anointed with *Ol. Lumbricor.* after these was prescribed this following Syrup. *Syr. de Endiv. ℥j. Syr. Rosar. ℥ss. Aqu. Endiv. Cichor. Bugloss. an. ℥j. misce.* Every day he had administred the common Clyster, his diet was thin, the fourth day were the Tents armed with a Digestive made of oyl of Turpentine and the yolk of an Egg. The fifth day he took this medicine. *℞ Rhabarb. elect. ʒss. spic. gr.vj. Cass. mundat. ℥ss. Diaprun. solut. ʒss. Syr. violar. ℥j. cum decoct. commun. fiat potio.* He washt the wound with Malvatick-wine. The seventh day he armed the Tents with this Digestive. *℞ Terebinth. ʒiiij. Ol. Mastich. Myrtin. an. ʒiij. Cer. ʒj. Thur. Mastich. Sandarach. an. ʒvj. Sang. Dracon. ʒj. misce.* Afterwards were the dressings armed with this *℞ Terebinth. Mell. Rosat. an. ʒij. Myrrh. Sarcocoll. an. ʒij. farin. Hord. ℥ss. misce.* The eighth day he began to eat some part of a Chicken. The time of consolidation drawing near, this decoction was ordered wherein was dipt Scarlet cloaths, and these were to be applied warm to the parts. This was the decoction. *℞ Salv. Beton. Absynth. an. M. j. nuc. Cupress. n. vj. Hyperic. M. jss. Caryophyl. ℥ss. coquantur in vini nigr. lbxiij. ad quarta partis consumpt.* After the wound was consolidated, this Bath was ordered, with which for many days the arm was fomented both for the strengthening of it, and also for its better motion. *℞ Beton. Hyperic. Salv. Iva an. M. ij. Stæchad. Absynth. an. M. j. Aneth. M. iij. Medul. Rad. Ebul. M. j. ʒss. Capit. Castrati n. ij. coquantur in f. q. aqu. ad med. Consumpt.* by which method this Nobleman was perfectly cured. *Horatius Augenius lib. 5. Epist. 2.* writes that *Marcus Antonius* died upon receiving a slight wound of his Elbow.

CHAP. LXXIV.

Of Wounds of the Wrist.

THE Wrist is made of four Muscles, *Cubitai Interni, Radiei Interni, Cubitai externi, Radiei externi*. The first two do contract the hand, the other two do extend it. If the Wrist or joints of the fingers be wounded they must be kept half shut moving a ball in the palm of the hand, for if they be kept extended, they when they are healed will be found incapable to grasp any thing. In these wounds you are to follow the same Intentions as are already shown. If any of the bones of the Wrist be broken or luxated, they are to be restored, and you are here to bring the parts to their site and natural conformation.

CHAP. LXXV.

Of Wounds of the Hand and Fingers.

Considering the admirable frame and structure of the hand being as the Instrument of Instruments, and its proper action is apprehension, and this made according to our will by its muscles, we here ought to enquire into its Muscles which are of two sorts, some guiding the motion of the whole hand, others only moving the fingers. In the whole, the Muscles which are allowed to belong to the whole hand are accounted forty in number, four of the Wrist, four of the *Radius*, three of the Palm of the hand, and twenty nine of the fingers. Of these there are nine inflectors, two bending the fore-fingers and seven the thumb; the extenders being twenty, sixteen extending the four fingers, in which number are included *Lumbricales*, and *Interossei*, the other four do extend the thumb. Having given thus a brief discourse of the Muscles of the hand and its fingers, here we are to note, that if any of its Tendons or Ligaments be wounded, that you dress these in the same manner as I have already shown you to cure wounds of the Nerves and Tendons. If any of its Veins be cut stop the flux and cure it as you do wounds of the Veins and Arteries; and if only some of its Muscles be wounded cure these wounds as I have directed you in wounds happening in the fleshy parts.

History.

I shall conclude this with some remarkable Histories. The First is of *Forest. fol. 176. cap. 37.* where he writes of a young man who received a wound in the left hand transversely made by a sword by his Brother, which wound past through the hollow of his hand even to his
his

his little finger. Insomuch as that all the Nerves about that part and Tendons were transversely incised. The wound was sticht up in three places, putting tents between every suture dipt in the white of an Egg and *Bol. Armeny* for the stopping the flux of blood. But this would not stop it, wherefore by the command of *Forestus*, who afterwards was called into consultation, was Tinder or burnt rags mixt with the bole and the white of an Egg, after which the part being rowled up the flux was stopped. These Topicks were left on for near three days. The third day the restrictive was removed, then was applied a digestive made of Turpentine, the yolk of an Egg and a little Saffron, with which the Tents and Dossils were armed, they first being dipt in *Ol. Hyperic. Magistral*. These being thus drest the wounds were bound up, and all the circumjacent parts were anointed with oyl of Roses for abating of pain and inflammation, and finding the fourth day a heat about his hand, instead of this digestive the whole hand was anointed with *Unguent. Populeon*. The fourth day he was purged with *Manna* or *Cassia*, the sixth day he took a decoction of Senna and Rhubarb. The seventh day being past, when all symptoms as Fever, Convulsion, inflammation and the like were no further dreaded, he was not ordered such a thin diet. The eleventh day because the wound did appear very sordid, and was not well purged, it was inwardly washt with a decoction made of Rosemary flowers and Roses boiled in Rhenish-wine, the which being done the above-said medicines were applied. The thirteenth day was applied to the wound *Unguent. Basilicon* for filling it up with flesh, ordering the Patient to keep a piece of wood in his hand; but because proud flesh did arise about his little finger, this was taken down by the powder of burnt Allome. The wound being filled with flesh it was skinned with *Empl. Griseum* and *Desiccativum*.

I will conclude this with that remarkable story of the worthy *Adrianus Spigelius*, who by a piece of glass wounded the fingers of his left hand, hence followed inflammation, the which not only possessed his whole arm, but did also occasion a large tumour under his arm-pit, the which was scarce suppurated, but there flew out bloody and fetid matter; hereupon he somewhat amended: this ceasing a Diarrhoea supervening, every thing turns to the worst, and at length he dies Emphyemated.

CHAP.

CH A P. LXXVI.

Of Wounds of the Thighes.

THE Thigh is moved by fourteen Muscles: *Psoas*, *Iliacus*, these do bend it; *Gluteus major*, *Gluteus minor*, *Gluteus minimus*, these said to extend it; *Triceps* taken for three, this doth adduce it; *Quadrigemi* taken for four; *Obturatores* these for two, abducting it. If the Articulation of the Hip be wounded, the Thigh bone must be kept in its Cavity, which may be done by laying the Patient on his back, and applying fit bolsters and rowlers. If the wound be large and made directly, here are you to stop the flux, and then digest your wound with Turpentine or the oyl of Eggs with a little Saffron. Mundifie it with *Unguentum ex Apio* or *Mel. Rosarum*, fill up with *Aureum* or *Basilicon*, and skin with *Dialpalm* or *Desiccativum Rubrum*. If the wound be made transversely and large, here are you to stitch up the wound, leaving an Orifice at the bottom for the discharge of the matter; then apply agglutinative Medicines, and proceed in this cure as I have already directed you in Wounds made in the flesh. If a wound happens here with a fracture, I shall here produce you an example of the like collected from *Ambrose Parey*, how you are here to deal, and another from *Glandorpe* in his *Spec. Chirurg. Obs.* 49.

The first of *Parey* is of a Noble man *lib. 10. cap. 12. de vuln. sclop.* History. who kept his bed for seven Months by reason of a wound which he received three fingers above the Knee. With which he had these symptoms attending it. As Intolerable pains, continual Fever, cold Sweats, Watchings, Excoriations of his *Coccyx*, occasioned

Of Wounds in Particular.

sioned by his so long lying in his bed. He oft times fell down like an Epileptick man with vomiting and a continual Trembling, so as that he could not bring his hand to his mouth without help. His thigh was fractured both lengthways and transversely with many small pieces of bones, of which some came forth, and others kept within, adhering to the Muscles of the thigh and of the leg, which caused a very large cold pituitous and flatulent humour about the parts, that they seemed as it were extinguished and robbed of their native heat. All which being considered there was but little hopes left of any cure. Yet confiding somewhat in the Patients age and strength, he first made two incisions to discharge the matters, which did irrigate into the substance of the Muscles circumposed to the bone. Which thing succeeded happily, for hereby a great quantity of matter was discharged. Here was injected into these incisions by a Syringe a good part of *Egyptiacum* mixt with Wine and a little *Aqua vita*, whereby the matter was compressed and amended, and the soft, loose and spongy flesh corrected, the Oedematous Tumour he resolved, the pain abated, and the native heat which was oppressed by the weight of the excrementitious humours was corroborated. He fomented the affected parts with this following Decoction made of *Sage*, *Rosemary*, *Tyme*, *Lavender*, *Chamomile flowers*, *Melilot flowers*, *red Rose leaves*, boiled in Wine and in a lye made of Oaken Ashes, to which was added a little Salt and Vinegar. This fomentation having in it an attenuating and ex-haurient quality, it was used for a long while. After this was made frictions with warm cloathes such as might cover the part in every place. For a short friction doth draw more of humour into the part, than it doth resolve. These being to be applied about the thigh, leg and foot, hot as they are taken from the fire and then dip't in Vinegar with a little of *Aqua vita*, by which
the

Fomentation.

the humours were stirred up, and many waterish humi-
dities were seen to run into sweats. The Tumour aba-
ted, the native heat seemed somewhat hereby to be re-
stored. After which were applied Stuphes dipt in the
aforesaid lye, in the which was boiled *Sage, Rosemary,*
Lavender, Salt, Aqua vite. Cloves, and the like. Then
were the parts so artificially rowled up, that they did
occasion no pain, and that with good success. That if
one day were herein neglected, the Tumour did arise
into a great Bulk. Thick doubled Linnen bowlters
were applied to the sinuous Ulcers by which the matter
which was inwardly lodged was expressed. For the re-
solution of the Tumour was applied this Cataplasme.

℞ *Far. Hord. Fab. Orob. an. ℥vj. Mel. commun. Tere-* Catapl.

hint. Venet. an. ℥ij. fl. Cham. Melilot. Rosar. rub.

an. ℥℔. Pulv. rad. Irid. fl. Cyper. Mastich. an. ℥iij.

Oxymel. simpl. q. s. fiat Catapl. Vigo's Empl. sine q.

was also applyed, by which the pain was wonderfully
abated, and the Tumour yielded hereto. Yet these

were not applied untill the parts were made warm both

by the bath and frictions; neither were Catagmatick

powders omitted. For fifteen days he took of a vulnerary

potion, and besides these particular frictions, the whole

body was prescribed to be bathed, by which the blood

was drawn with its spirit to the parts. At length the

Fever being abated, and the pains lessened, he taking

meat of good Juice for restoring of his lost spirits, in a

short time he was made better, and by Gods goodness

was restored to his former health, save only that he did

not recover the perfect liberty of bending his Knee.

The second you may read in *Matth. Gland. Obs. 49.*

Of one being wounded with a bullet, whereby was made

a penetrating wound with fracture of the thigh bone:

but this being long I rather commit you thither, than to

fill up my Book into a large Volume by Histories.

CHAP. LXXVII.

Of Wounds of the Legs and Feet.

BEfore I come to treat of these, it will be necessary to bring in the parts of which they do consist, which is best done by Anatomy. And here may we see the Leg framed with eleven Muscles, thus called. The first of which is *Seminervosus*, 2. *Gracilis*, 3. *Innominatus*, 4. *Biceps*, these said to be made for its flexion. 5. *Rectus*, 6. *Vastus externus*, 7. *Vastus internus*, 8. *Cruentus*, these appointed for its extension. 9. *Longus sutorius*, 10. *Popliteus*, these adducing it, and the last *Membranosus* abducting it. The Muscles of the Foot are 6. *Tibialis Anticus*, *Peroneus* these bending it, *Gemell.* or *Gastrochemii externi* and *Interni*, *Soleus*, and *Plantaris*. The Toes have allowed them 14. Muscles. As thus, 1. *Magnus* or *Profundus*, 2. *Sublimis*, these bending them, the 3. and 4. extending them, the 5, 6, 7, 8. called *Lumbricales* adducing them, 9, 10, 11, 12, 13, 14. *Interossei* these abducting them. The great Toe hath four allowed it. Having given you this brief survey of the parts of the Leg, Foot and Toes by Anatomy, we proceed now to its wounds, where we may by advice learn, that if the Knee be wounded, it must be kept extended, for otherwise before the Patient be cured of his hurt, he may chance to meet with a contraction. When the joints of the Toes are wounded they are to be kept in their natural posture. Wounds happening upon the Knee or Leg are very perillous, these parts being accompanied with many Nerves, Tendons and Ligaments, and being planted by nature as the depending parts, they are the more subject for reception of defluxions of humours. Prevent

in these cases the impendent symptoms by revulsives, bloodletting, cupping, ligatures, and frictions, ordering your Patient a thin diet, keeping his body soluble and the like. Here are you, as touching the affected part, to take the same directions as are prescribed in wounds of the arm, making a repelling ligature to prevent any fluxion of humours. If any Nerve be here wounded these you may know by the pain and inflammation, or if any Tendon or Ligament be hurt, address your self to my discourse of wounds happening in the Nerves, where you will meet with sufficient directions and medicines, as may answer your expectation here. If a large flux of blood succeeds upon the wound, stop it also, as you are directed in wounds of the Veins. Keep your Patient in a good temper, and observe to follow the former directions proposed, and with Gods blessing question not your way of proceeding. But to conclude these parts, take these following historical observations, the which may add to thy skill if the like accidents might happen to thee in thy practice.

The first is of *Gulielm. Placentin. Prac. cap. 5.* who *History.* writes that he saw one who was wounded in the Leg upon the minor fossile, by an Arrow, which Arrow reached to the superficies of the bone, and did not hurt it. The Chirurgion could not defend the place with all his instruments, but a stiffness seized the part, and a Fever followed, and within less than a month the Patient died hereof.

Another of the like examples *Forester* brings in *Obs. Another.* 49. lib. 6. fol. 255. of one *John Roan* of Delph who had hurt his Leg against some hard matter, the which did contuse it and transversely wounded it; this not being much regarded, he applies a Womans advice for eight days. But when his Foot was affected with cold, the Leg began to grow stupid, and hence followed a great pain and Spasm, the which accidents could no ways be

be removed ; hence followed a Fever, no medicines taking place, although six Chirurgeons were in consultation concerned herein with a Physician. By this pain he became restless, the Fever encreasing upon him. In his Foot and whole Leg did a gangrene arise, the which not being to be cured, and he being so weak that amputation could not safely be made, died of this small wound.

Another.

He hath another also of one who was wounded in his right Foot, so as the whole Foot was cut off about the *Malleolus*. To the cure of which *Carpus* being deputed, the blood he suppressed with the white of an Egg and a restrictive powder. And as for asswaging the pain, which was vehement, and for the prohibiting the Spasm, he anointed the whole Leg with hot oyl of Roses, and the Inguens with the same. Upon his thigh was applied a a defensative. In the second and third visits he applied two pledgets dipt in *Saliva*, and sprinkled with his restrictive powder, which were applied to the cut Veins and Arteries. And above these two other bowllsters dipt in the oyl of *Hyperic. cum gum.* then he rowled up the part with convenient ligature, ordering the Patient a thin diet. And for his Fever was prescribed this. & *Syrup. End. ℥j. Mel. Rosar. ℥℔. Aqu. Endiv. Betonic. Cichor. an. ℥j. misce.* The next dressing being the fifth day the pledgets were armed with *Unguent. ex Cera, Terebinth. ol. Rosar. Mastich. & Pulv. Lumbric. lot. in vino & preparat.* then was administred a Clyster. Then

Potion.

Digestive.

was the wound dressed with this Digestive. & *Terebinth. ℔℔. Mel. Rosar. ℥iiij. Farin. Hord. ℥ij. Myrrh. Sarcocoll. an. ℥℔. cum vitello ovi fiat unguent.* Afterwards he received a more thick diet. Then was the wound washt with Malvatick wine, and after its thus being washed was it thus dressed with the pledgets armed with this following. & *Terebinth. ℥iiij. Ol. Myrtin ℥ij. Cer. vernic. an. ℥j. Sang. Dracon. 3vj. Thur. Mastich. an. ziiij. fiat Unguent.* Upon the pledgets was spread *Basilicon*. And thus

Unguent.

thus he proceeded for some days; the wound hereby being filled with flesh, this cicatrizing Unguent was used. *R. Ol. Ros. Sevi castrat. an. ℥ij. Terebint. V. Cer. Litharg. aur. an. ℥ij. Ceruss. ℥iij. Thur. ℥j. fiat unguentum.* Then the wound was washed with Allome wine, and there was used *unguent. de Calc.* And above the wound was sprinkled a little powder of burnt Allome, by which remedies he was perfectly cured.

Obs. 50. Forest. lib. 6. we read of a man who after having washed his Feet, with a Penknife studied to scrape off the callous or hard substance which grew under the sole of his Foot, with which Knife he cut the part, the wound not being great; but hereupon presently followed a Spasm before proper medicines could be applied, whereof he presently died.

History of a wound in the sole of the foot.

Dodonæus cap. 71. Abdit. writes of a Citizen of Florence, and many others who having received any hurts here, within few days to have died: For upon here receiving a wound or ulcer especially in old people, he found them to encrease and spread and grow of a livid colour, and the *Cutis* of the part to be filled with black *Pustules*, and then losing its sense to grow livid and black, neither doth it leave its spreading quality until it hath reached the bones themselves and infected them. And if any thing seem sharp, and you cut to prevent its spreading, it still creeps further, these parts being far from the Fountain of heat, and the heat which is in them being weak, and the parts very well replenished with Nerves, the which being herewith infected do easily and speedily communicate of their hurts to other parts, whence it happens that these being touched they do send forth the same so as until the whole member be hereby miserably infected. The same accident happened to a Patient of mine here in *Normich*, an old Gentleman, of above seventy years of age, dwelling

Another of the Toes.

Of Wounds in Particular.

dwelling in *Suffolk*, who having a Corn cut in his Toe, and neglecting it did not seek for help very speedily, pains and inflammations seizing his Toe, did also bring the whole Foot into consent; and hence caused an inflammation in that. Coming to *Norwich* committing himself to my honoured Uncle *Cropps*, and my cure, although the best of remedies were prescribed, yet this turned into a gangrene; we using the best of medicines to separate this, yet all availed nothing, for within eighteen or twenty days he had his Foot and Leg so far spread therewith, that it got upwards with that speed that it did in a very short time occasion his death.

CHAP. LXXVIII.

Of Wounds of the Joints.

WE are now arrived at the last part of our discourse, which doth treat of Wounds of the Joints, that part being so most properly called which is framed for the setting together of the bones for the performing of free motion. Now wounds made here, are made either by puncture or incision, and these do reach either the upper parts, or else do penetrate into the cavity thereof. All wounds here happening are dangerous, according to *Galens* saying, they being endowed with an exquisite sense by reason of the Nerves, Tendons, and Ligaments wherewith they are covered, lined, and enwrapped. Hence therefore upon wounds here received do generally arise an afflux of humours, occasioned here by pain. Afterwards inflammations, watchings, thirst, convulsions, weakness, and sometimes death. Such wounds as do
penetrate

penetrate the Joint, by *Celsus* opinion must of necessity be allowed dangerous, for hereby the moisture which kept between the joints is let out, the which being dispatched, an excrementitious humour doth fall thereinto, being a thin ichorous substance much resembling that of *Meliceris* according to his opinion.

As touching its cure, if it be punctured, dress this Cure. wound as I have already shown in puncture of the Nerves. Keep the parts from cold and defend them from pain, for cold hardneth the skin, hindereth supuration, and doth extinguish the native heat as *Hipp.* writes. If the wound be made by incision, and this be large, stitch it up, hereby not touching any of the membranous or tendinous parts; leaving a small orifice in the depending part thereof, for the better discharge of the matter. If the wound penetrates not the cavity of the juncture, dress this with *Linimentum Arcae*, adding hereto a little fine powder of Frankincense, Dragons-blood, Myrrh and Aloes; and to an ounce of the former Liniment add a dram of the said powders; above which may be applied an anodyne Empl. or Cataplasma made of *fl. Cham. Melilot. Rosar. rubr. Sambuci, farin. Fabar. Hord.* and the like; to which may be added some milk with a little *Ol. Myrtin. Rosar. & parum Croci*, applying these, and all your other medicines which are to be used, actually hot. If the wound doth penetrate the Joint, you are by *Aquapendens*'s advice to apply a very drying medicine: these parts being naturally very dry, and therefore requiring drying medicines: they being also void of sense and feeling, and a great plenty of matter falling herein, ought and do request very drying medicines. And for this use *Balsam. Peruvian. Liniment. Arcae, Balsam. nostr. Balsam. Lucatell. cum Spir. Terebinth.* are very excellent medicines here; always observing to keep every member in its due position: and when you see the wound doth begin to

Of Wounds in Particular.

Unguent.

Catapl.

History.

Digestive.

unite, you may order your Patient to use a moderate motion of the wounded part. To conclude, if you are to digest, this is here very proper, *R. Terebinth. lot. in aqu. salu. ℥ss. mel. opt. ʒiij. farin. Hord. ʒij. Alo. Succotrin. ʒiij. fiat unguentum* : or for the same use may this be applied. *℞ Farin. sem. Lin. Hord. Orob. an. partes equal. mel. q. s. ad Catapl. spissitudinem, dein cum frigidum evaserit adde Pulv. Myrrh. Alo. an. ℥ss. misce pro usu.*

I'lle shut up all with the History of a man who being shot in the joint by a bullet, the shot penetrating the joint of his right arm, and although searching with my probe I soon found how it was lodged, yet by reason of the narrowness of the orifice, and the many Tendons, branches of Veins and Arteries planted thereabouts, I at first did not attempt the extraction of the same, yet very speedily conjecturing how to prevent all pains, I dilated the wounded part and extracted the shot, the which being attended with a large flux of blood, this was speedily repressed by my restrictive powders, after which the wound was digested with this following *Unguent. R. Terebinth. Venet. lot. in aqu. Plantag. ʒij. Ol. Hyperic. magistral. ʒj. vitel. Ovor. n. j. Croc. ʒss. over* which was applied a repelling Cataplasm made of *Bol. Armen. Sangu. Dracon. Myrrh. Mastich. Ol. Myrtin. Rosar.* with a little *Acetum* and *Aqua Rosarum simul mixt.* At the second dressing for ease of pain, and allaying of inflammation, the circumjacent parts were embrocated with *Ol. Rosarum & Ol. Chamamel.* still continuing the former digestive until the part afforded a laudable matter; then was it deterged with this following injection which was injected into the wound by a Syringe, made of *Sanicul. Hyperic. Centaur. Absynth. Agrimon. Betonic. Veronic. Salv.* and the like, adding to the Decoction a piece of Roch Alome, in its boiling, and when colated annexing to it some *Mel. Rosar.* The wound being thus deterged it was afterwards filled up

up with flesh by the benefit of *Unguent. Aurei, Basilic. & Liniment. Arcaei* mixed all together, and by ordering the Patient a thin diet, keeping his body soluble, and a good temper in his parts, and by the benefit of *desiccativum Rubrum* his wound was cicatrized and the Patient perfectly recovered.

Thus have I sailed through the bloody Ocean of Wounds, wherein I have like a faithful Pilot shown how the young Chirurgeon may steer his course in the wounded Main, and how he may keep both himself and the vessel of his Art from the Rocks and Shelves of ignominy and slander. To which also have I added the variety of figures which show both his useful instruments and postures, accompanying the discourses with the authority of historical observations. And if any more studious, and a greater lover of Art, and master of Learning shall be pleased to send forth a better light, I will soon call in mine; in the interim accept with kindness that which is here afforded, and be not dissatisfied with my method which is good, and capable enough of teaching every young Artist, how to procure health to the wounded Patient, and to unite the parts which are disjoined.

Sic Textor telam contexnit.

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